UNIVERSITY OF GLASGOW

DEPARTMENT OF SCOTTISH HISTORY

THE UNIVERSITY OF GLASGOW 1910-1930 WITH EMPHASIS UPON ITS PARTICIPATION IN THE FIRST WORLD WAR

BY

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ABSTRACT

The main theme of this thesis is to investigate the participation of the University of Glasgow in the First World War, 1914-1918. A considerable amount of time is also spent examining the period following the war up to 1930. At the outbreak of war the University had been in existence over 460 years and during this time it had of necessity interacted with the local community.

As the community changed by providing services, goods and raw materials on an increasing scale to a widening market, so the University adapted to the community's needs. The courses provided by Glasgow indicated the educational requirements of the district in particular and other parts of the world generally. This interaction between the locality and the University is explored to enable the University's role within the socio-economic environment of the period 1910 to 1930 to be placed in context. Occasionally a step back into the nineteenth century is taken in order to provide the rationale for twentieth century conditions.

By 1914 the University had acquired an enviable reputation and the facilities for producing academics, lawyers, doctors, engineers and scientists. It is noted that such success required an equally successful structure of internal government and this is examined pre and post-World War 1. Funding is also scrutinised as is staff numbers and the faculties in which they worked. In 1913 affiliation had taken place between the University and The Royal Technical College and the events leading up to this are considered.

When war broke out in 1914 the laboratories, workshops and personnel were utilised to help bring about the defeat of Germany and its allies. Members and ex-members of the University student and staff population volunteered in large numbers for all branches of the armed services. Staff and students were also recruited to various Government bodies, hospitals and munitions factories to aid the war effort.

During the War, The Royal Technical College, embarked upon a scheme to train workers, especially women and men who were unfit or too old for service, to produce the munitions required for war. In addition to helping set women upon the road to emancipation by introducing them to the normally male-dominated workplace, the foundation was laid for unrest amongst the skilled male workers by providing a pool of semi-skilled, diluted workers. These dilutees were perceived by the unions as a threat to the livelihood of the skilled workforce.

Following the Armistice in 1918 the University had to learn to live with peace. Staff, materials and financial shortages, coupled with a large influx of students, led to difficulties the University had to overcome. Initially there was prosperity for all but by 1921 the economy had broken and prosperity turned to recession. Recession hit large numbers of the workforce as inflation, higher prices, numerous strikes and lower wages became the order of the day. Rising prices and dissatisfaction with their status encouraged the Lecturers to press for a new salary structure and an increased voice in running the University's affairs. The University's post-war relations with the other Scottish universities are detailed as the struggle to establish a common entrance examination and a composite fee took place. The University's futile attempts to inaugurate a degree in commerce are also considered.

When the student population is scrutinised it is seen that although numbers varied, the trend was ever upwards. The Carnegie Trust was a tremendous help in assisting students to attend university and it is seen that approximately half of all students had their fees paid by that body. One advantage of this was that a student whose father was in a lowly occupation such as labourer, had the opportunity of attending courses leading to a degree. In addition to gender, the geographic location of the student population is also examined and the proportion of students from outside Scotland is defined.

The work closes in 1930, just as the world was to meet the catastrophe of the slump which followed hard upon the heels of the Wall Street Crash of 29 October 1929 in the United States of America.

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LIST OF ABBREVIATIONS

A Uni	Anderson's University
B A	British Association
Cal	Calendar
GHTR	*Glasgow Herald Trade Review*
Comm	Committee
COS	Charity Organisation Society
GWSTC	Glasgow and West of Scotland Technical College
Mins	Minutes
NPL	National Physical Laboratory
NUWM	National Unemployed Workers' Movement
OTC	Officer Training Corps
QMC	Queen Margaret College
Rep	Report
SED	Scotch/Scottish Education Department
TRTCG	The Royal Technical College, Glasgow
UG	University of Glasgow
UGCC	University of Glasgow Court Camera
UGCR	University Grants Committee Returns
UGGC Reps	University of Glasgow General Council Reports
USA	United States of America
YMCA	Young Men's Christian Association

PREFACE

The object of this thesis is to explore in depth the activities of the University of Glasgow during the First World War. Interest in this period grew whilst researching the topic of technical education in the west of Scotland up to 1914. The realisation that the University of Glasgow and The Royal Technical College both had tremendous resources in the form of engineering workshops, laboratories, research facilities and highly qualified staff led to speculation upon the extent to which the Government utilised these assets during the War.

One major problem which very quickly became evident, and has remained throughout this thesis, was the involvement of The Royal Technical College. Because the College was affiliated to the University in 1913 it soon became apparent that it would have to be included in the work. But the quandary was, to what extent? And this has remained a constant problem, especially as the activities of the College during the period 1914-1918 are very well documented in Minutes and other original material available in the archives of the University of Strathclyde. Drastic editing has still left a large amount of subject-matter devoted to the College. This period is assuredly a potentially fruitful area worthy of research.

In order to evaluate the impact of the War, the years immediately preceding and following the crisis had to be examined. Without understanding the operation of the University within the environs of the west of Scotland before the War and then its performance following the conflict one could not evaluate the effects of the War upon the establishment.

Originally the parameters chosen were 1910-1920. However, once research commenced it was realised that the terminal date did not give enough scope to cover the economic, social and educational events following the War. Consequently, after consultation with University supervisory staff, the date 1930 was chosen. Although the

commencing date has proved of necessity to be very flexible the terminal date of 1930 has given the required latitude in which to evaluate the impact of the War and the resulting events.

At the commencement of hostilities University staff and students enlisted in large numbers in the armed forces. This led to problems in staffing and reduced student enrolments; problems which had to be solved by the managers of the University. They did this with great efficiency and the business of educating a depleted student population with a proportionally depleted number of staff continued.

Those remaining in the University, either through gender, age restrictions or not reaching the required standard of physical fitness demanded by the armed forces, helped the war effort in any way stipulated by the authorities or as volunteers for local or national projects. Under such schemes, fourth year medical students were obliged to enrol in the OTC, male students worked in munitions factories and women students in hospitals and the post office. Staff members were drafted onto various Government projects which were as diverse as being a Commissioner in Nigeria and lecturing to disaffected miners in Wales. Other staff members volunteered to work for the YMCA in France and lecture to prisoners of war in various camps.

Such war work often meant staff requesting leave of absence for the duration of the proposed undertaking. Requests were never denied by the University Court, although certain conditions were occasionally imposed by it. For example, before embarking upon leave of absence the member of staff might have had to make provision for his classes to be covered and even pay from his own pocket for the services of the person covering them.

The Royal Technical College was heavily involved in training munitions workers, especially women. Many examples of employers and others being surprised at the expertise exhibited by these female trainees have been recorded as they produced work of an incredibly high standard. Undoubtedly, women achieved political emancipation in part as a direct result of their labours in the once male-dominated workshops. The

movement, which had commenced before 1914, was speeded up by the participation of women in the War.

Even before the War ended many walking-wounded returned to Glasgow in order to continue with disrupted studies. By 1917 the University was making realistic plans to cater for the demobilised ex-service personnel. And this forward planning was put into operation as thousands of students, assisted by Government grants, took up disrupted studies or embarked upon new courses. In the first academic session following the War the faculty of medicine was filled by a preponderance of ex-servicemen. Other students were compelled to wait another session before they could embark upon their medical studies. By 1924 the majority of returning servicemen had graduated.

Before the War ended it was expected that Britain would return to the economic and social position it enjoyed pre-1914. This was not to be and Britain's heavy industries declined as they failed to progress amongst the emerging industries such as fine chemicals, the developing electrical industry and others. After an initial period of prosperity following the War recession bit and unemployment became the order of the day. There was much industrial unrest and a general strike took place in 1926 following upon the commencement of the miners' strike.

Many of the demobilised servicemen suffered physical and mental injury to the extent that they were unemployable. To cater for these and other unemployed, the Unemployed Insurance Act came into force at the end of 1920. This Act was anathema to many of the employers and others who proclaimed that it would promote laziness amongst the unemployed. Another problem of the time, but not a child of the time, was the extent of slum housing. Although Glasgow Town Council had tried to solve this problem in the past it was to live on. The men of the War often thought they had fought in vain when they encountered mass unemployment and bad housing.

There was also unrest amongst the lecturers of Glasgow and other Scottish universities as they strove to increase their salaries and gain a hand in the running of the universities by being represented on the General Council. After a long struggle they eventually acquired a voice on this governing body within the University. The University of

Glasgow was itself trying to come to terms with peace as it unsuccessfully attempted to establish a degree in commerce. It was also embroiled in discussions with the other Scottish universities concerning a common preliminary entrance examination and a composite fee for the different faculties. It was to be 1927 before these differences were settled

Following the War many new Chairs and Lectureships were established as local dignitaries and others donated money. Prominent amongst these were the Gardiner brothers and ex-Provost Stevenson. The dead of the War were not forgotten and a Memorial Chapel was built in their honour and dedicated in 1929. And so the University battled its way through the aftermath of the war, coping with an ever-expanding student population and regular financial deficits as an increasing income was matched by greater expenditure.

There was to be no relief for either the city of Glasgow or its university in the 1920's and 1930's in their dual quests for adequate finances and space to house in decent accommodation an expanding population. Unfortunately, when the turn-around in their fortunes came it was accompanied by the roll of the war-drums as the world was once more embroiled in conflict. World War Two commenced a mere 21 years after the ending of the First and the University, along with the remainder of the population, had it all to do again.

The main source of information for this thesis is located in the archives of the Universities of Glasgow and Strathclyde and the Glasgow Room of the Mitchell Library, Glasgow. Government publications are located in the two university libraries. For contemporary opinion on many aspects of pre and post-war social and economic conditions in Glasgow, as well as comment upon the War and its implications for Britain, the *Proceedings* of the Glasgow Philosophical Society, located in the Glasgow Room of the Mitchell Library, contain a wealth of information. The Glasgow Room, containing as it does easily accessible books, newspapers and magazines, such as *The Bailie*, and biographical material such as the *Dictionary of Scottish Business Biography* in two volumes edited by Slaven and Checkland and various statistical works, is an excellent starting point for research concerning any facet of Glasgow life.

CHAPTER 1

Glasgow University and the Community 1900-1914

This chapter is designed to provide a backcloth against which the participation of the University in the war of 1914-1918 may be set. It will survey the scope rather than the depth of the main industries and social structure of late nineteenth and early twentieth century Glasgow and area. The treatment will not be exhaustive but indicative,

It will show that shipbuilding was the main industry of the region, ably supported by various branches of engineering, especially heavy engineering. Chemicals, the extractive industries and iron and steel-making were also prominent. Interwoven with the industrial environment was the professional community; lawyers, bankers, medical practitioners and, to safeguard the spiritual aspects of life, the clergy.

But in addition to this comfortable middle-class life was the poverty and misery of many of the working class, especially the non-skilled. Although the University and The Royal Technical College catered mainly for the skilled working and middle-classes the unskilled strata of society, who would only exceptionally receive any form of higher education, will also be considered

Nourishing the demand for able men and women to sustain the higher echelons of this socio-economic structure were the tertiary educational establishments of the area. In this sphere the University played a major role by offering scientific and professional qualifications to satisfy mainly local but also British and Colonial manpower shortages.

THE COMMUNITY

From the earliest times the University had played a major role in the affairs of Glasgow. It was originally founded by the authority of the See of Rome. Of the four Scottish universities Edinburgh alone was not founded by a papal bull. As Jennifer Carter and Donald Withrington wrote: 'the town council rather than a papal or noble patron had acted as midwife in the emergence of the college.'[1] Pope Nicholas V, by a bull dated the seventh of January 1451, appointed William Turnbull, Bishop of Glasgow and his successors to establish the University. The Bull narrated that Glasgow was 'a notable place, enjoying a salubrious atmosphere and abundance of all the necessities of life.'[2] The Bishop appointed a Chancellor and Rector and together they prepared the Body of Statutes. Three faculties were created: Theology, Canon Law and Arts.[3]

It has been recorded that Glasgow in the mid-fifteenth century consisted of churchmen clustered near the cathedral with neighbouring fishermen and small burghers plying their trades. This environment 'was deemed most fit for such a seminary by reason of the healthiness of its climate, the plenty of victuals, and of everything needful for the use of men.'[4] And because the great European universities of the time divided their students into nations, since students from many different countries came to study, Glasgow followed suit, even though the 'nations' were only students from differing regions of Scotland.[5] Initially the regions were Clydesdale, Teviotdale, Albany and Rothesay.[6]

The reasons for the granting of the bull by Nicholas are unknown but one may speculate why William Turnbull accepted the challenge of establishing a university/college in Glasgow. In the first instance there was strong rivalry between the Sees of St. Andrews and Glasgow and as St. Andrews had founded a university in 1411 Bishop Turnbull probably wanted to establish his own to show that Glasgow was at least intellectually St. Andrew's equal. A second point worthy of speculation is that a supply of trained and educated priests was required to administer to the spiritual and temporal affairs of the growing population of the Glasgow See.[7]

Moreover, a university as a means of attracting local development cannot be ignored.[8] Pope Nicholas V was a graduate of the University of Bologna and, because of this

connection, Bologna was the model for the new university which 'came into the world as naked as any individual.'[9] In fact, the 'individual' was so naked that although three faculties were established, lack of money meant that only the faculty of Arts actually functioned.[10] Duncan and Moss relate that Bishop Turnbull gave nothing but his blessing to the venture and there were no teachers of any distinction until John Major became Principal in 1518.[11]

The University first met in a tenement rented by the College on the South side of Rottenrow, later known as the 'Auld Pedagogy'. In 1460 James, First Lord Hamilton, gave to the University a tenement of houses in the High Street, along with four acres of land on Dowhill (or Dovehill), adjacent to the Molendinar Burn. These lands, with additions subsequently made by purchase and donation, formed the site of the University until it moved to Gilmorehill in 1870.[12]

By 1550 the University was in a sorry condition with dilapidated buildings and one part-time teacher for about 40 students.[13] In the general ruin which overtook all Catholic institutions at the Reformation of 1560, the University was almost extinguished. Its members were dispossessed of their honours and money whilst Archbishop Beaton, then Chancellor, fled to France, carrying with him the University's records, charter and mace.[14]

But the University survived with recovery coming in the 1570's, when Andrew Melville as Principal reformed the curriculum to suit the needs of a society which held elementary education for all children as one of its ideals.[15] Melville had been a student at Paris, a lecturer at Poitiers and a Professor at Geneva. It was upon his return from Geneva that he reorganised the University so that within a few years 'there was no place in Europe comparable to Glasgow for a plentiful and good cheap market of all kinds of languages, arts and sciences.'[16]

In 1577 the constitution was remodelled and the teinds of Govan were gifted to the College by James VI in a Charter known as the Nova Erectio. Following the new Charter the College flourished until the Restoration of Charles II and the resulting

Episcopacy in 1660. Following the Restoration large parts of its revenues were withdrawn, resulting in debt and the abolition of some professorships.[17]

However, the Nova Erectio was to put the College on a firm basis which was to endure and by the beginning of the eighteenth century its reputation was growing. Glasgow's rise to prominence can be attributed to the growing wealth of the city, first as the centre of the tobacco trade between America and Britain and then as the home of industries such as textiles, shipbuilding, engineering and coal.[18]

From its foundation in 1451 until 1870 the University had been located in the heart of the city in the vicinity of the High Street. Eventually slum dwellings and industry encircled the premises, engulfing the buildings in filth and misery and garden walks and gardens were increasingly darkened by smoke and polluted by chemical and other 'manufactories'. The effects upon its students of the surrounding low life concerned the clerics who dominated the University.[19]

Representatives of the current police authorities were also perturbed by the location. In an undated report James Smart, the Superintendent of Police, commented that 'from the character of the district altogether, it appears to me an unfit place for a great educational institution such as the University.' The district was considered old and decayed, with an excessive number of whisky shops, pawnshops and disreputable people of both sexes indulging daily in crime and disorder, making it one of the most troublesome parts of the city to the police.[20] Dr. Duncan Macfarlan of the University commented that the bad language heard and the sights observed daily by the students were 'extremely injurious to their feelings, their tastes, and their morals.'[21]

In 1846 a scheme whereby the Glasgow, Airdrie and Monklands Junction Railway would take over the city centre buildings then housing the University in exchange for the erection of new buildings at Woodlands was abandoned when the railway company failed to fulfil its part of the bargain.[22] Eventually, but not without some misgivings, the move was accomplished in 1870, once again with the collaboration of a railway company. Two proposals in 1864, each by a railway company, resulted in the University agreeing to the terms put forward by the City of Glasgow Union Railway

Company to sell its High Street site and move to Gilmorehill in the city's west end. Their entry on to the site was only to be delayed until new buildings could be erected on the hill above the Kelvin Valley.[23]

With retrospect this move can be criticised for a number of reasons. In the first place it brought about the destruction of one of the city's most famous architectural and historical group of buildings. Ironically the Union Railway named the old University site 'College Goods Station.'[24] Commenting upon the imminent destruction of the old college buildings by the Union Railway, and the connection between James Watt to the University and the development of the steam engine which made railways possible, *The Glasgow Herald* reported:

> Deep-brooding Watt, sitting in his academic shop, studying great physical powers, evoked from his brain the very spirit...which is about to lay the walls of his student's cell in ruins. It is to the railway that the University is about to yield up its ancient dwelling place, and, in a few months, there will sweep over the spot where the great philosopher sat the very spirit which he was then chaining to the car of civilisation.[25]

In 1792 the foundation stone of the Glasgow Royal Infirmary was laid and two years later the building was ready for occupation, the culmination of the work and endeavours of one individual, George Jardine, Professor of Logic at the University. The Infirmary served the University well and when completed had space for 200 students.[26] The close teaching connection between the two institutions was broken when the University moved, but the necessity for a nearby teaching hospital also helped the University to choose Gilmorehill as its next home.

The proximity of the proposed Western Infirmary (completed 1874) to the new site and changing conceptions of where the University should be located swayed the balance in favour of the west end of Glasgow, the very place where many of the city's elite had established their homes. Eventually, after public donations enabled building to commence, the University changed sites in 1870.

The Principal of the University of Glasgow, writing in 1901, commented that the removal of the University to its present site could not but interrupt 'the intimate and

constant intercourse which had marked the relation of town and gown in earlier days.'[27] This feeling of estrangement was only temporary and somewhat superficial. The red-gowned students would be missed but soon, in 1888, the civic administrators themselves moved to the new city chambers in George Square that were far grander than those of Gilmorehill. And the city itself marched steadily westwards. In 1872 the boundaries were extended to take in the estate of Gilmorehill and Donaldshill and so the city itself seemed to be following the University away from the old central location.[28]

Principal Story commented that as long as the University kept its hold on the mind of Glasgow

> ...there can be no relaxing of the bonds of amity which unites the two. Neither can do without the other. Take away from Glasgow its industry and commerce; and we all should feel the pinch of chill poverty, and all our activities would fall under dull arrest: take away its science and learning; and it would become earth-bound and narrow hearted, no pulse of divine life beating in the blood of the slave of mammon. Which may God forbid.[29]

Previous to the University Act of 1858 the whole business of the University was transacted in three distinct courts: Senate, Faculty, Comitia. In addition to these three courts, a court called the Jurisdictio Ordinaria consisting of the Principal, the four Regents (Professors of Greek, Logic, Ethics, Physics) and the Professor of Humanity, along with the gowned students, met occasionally when the need arose to discipline junior students.[30]

By the Scottish Universities Act, 21 and 22 Vict; chap. 83, (1858) important changes were made in the constitution and government of the University. The distinction between the Senate and Faculty was abolished and two new bodies were instituted, the University Court and the University Council. In addition, Commissioners were appointed who issued ordinances, sanctioned by Her Majesty, for the administration of the affairs of the University.[31]

Further changes were made in the constitution and government of the University by the Universities (Scotland) Act, 1889. Basically this was the form of government which operated during the time span of this dissertation, 1910 to 1930, and further to the 1960's. By this Act an Executive Commission was created with power to repeal or modify any ordinance made under the Act of 1858. The Commissioners continued to exercise their powers until the end of 1897. They were responsible for issuing Ordinance 60 which enabled the Students' Representative Council to be founded. After the expiration of the Executive Commissioners' period of office the power of founding new professorships and making other ordinances devolved upon the University Court.[32]

Regarding the 1889 Act, Walter M Humes reports that although G E Davies wrote bitterly on both the composition and the recommendations of the 1889 Commission, claiming Anglican sympathies with Oxford and Cambridge connections,[33] such accounts carry the temptation to ascribe all change to some kind of English conspiracy.[34]

Carter and Withrington relate that in Scotland federal ideas were in the air at the time of the passing of the 1858 Act but this Act did not directly federalise the system of Scottish university education then in place. But following the 1889 Act the four Scottish universities were in some degree harnessed together in an awkward type of federation 'kept alive more by suffering acceptance than by inner compulsion, yet nonetheless recognising that there were advantages, for instance in dealings with government and Treasury, if they were seen to march together.'[35]

The University of Glasgow in the early twentieth century was described as a corporate body which had always included a Chancellor, Rector, Dean of Faculties, Principal, Professors and Students.[36] And these officers, serving particularly the students and population of Glasgow, were to steer the University through the forthcoming turbulent years as their predecessors had done before them.

The socio-economic conditions existing in twentieth century Glasgow prior to World War 1, were the legacy of an earlier era. Even architecturally, the edifices of the City

Chambers, Glasgow University, Queen Street, Central and St. Enoch's railway stations and many of the impressive buildings encountered on the parallel roads from George Square to Charing Cross, were the creation of Victorian Glaswegians. The large number of magnificent buildings in Glasgow conveyed the wealth and confidence of the classes who helped to create one of the world's major cities.[37] And yet the Victorians themselves inherited a considerable elegance from their Georgian forebears. Buchanan Street and Blythswood Square were both in existence before the advent of Victoria.[38]

Victorian Scotland was an unequal society.[39] At the top was a group of the very rich composed of large landowners, wealthy professionals and big businessmen who accounted for a quarter of the national income and enjoyed a personal annual income 200 times as large as the 427 000 people at the bottom of the pile.[40] Moreover, they often wielded significant local and national political influence.

At the other extreme of the upper echelons were the lower middle classes composed of the owners of small businesses and the growing army of clerks. Between these two extremes lay the numerous ranks of the solid middle of the middle class: leading retailers, middling manufacturers and members of the professions.[41] McCrone classifies the elite group 'The Landed Gentry' as being at the top of the Scottish social hierarchy followed by 'The Bourgeoisie' and the 'Petite Bourgeoisie'. And it was from the upper and middle ranks that the employers of the skilled and the unskilled labour force were drawn.[42] William R Brock writes:

> The social tone of the capital was set by ministers, lawyers, professors, and men of letters, not by titled men who lived on rents from inherited estates. In Glasgow the dominant elite was even more decidedly middle class. The tone of Aberdeen, with its Episcopalian traditions and proximity to great landed estates, was slightly more aristocratic....[43]

The 1901 *Census of Scotland* gave six classes of occupation for this bottom group: professional; domestic; commercial; agricultural and fishing; industrial; unoccupied and non-productive.[44] These were the workers, the ones who did the bidding of the industrial and other elites[45] who provided the capital, work and the opportunity for gainful employment.

Many of the firms of the time were owned and run by a single family or a partnership of individuals. Numerous middle-class Glasgow families derived their incomes mainly from participation in business and the firm and the family were closely connected.[46] Glasgow's merchants and shipowners were commonly linked by family or economic interest with the industrialists. An exceedingly experienced and well-connected elite, they generally represented a formidable trading advantage to their industrial partners.[47]

And many of these concerns had connections with the University of Glasgow. The University played an important role in the city's public rituals and in the life of the elite more generally.[48] For example, Professors Barr and Stroud, cooperated in 1888 in an attempt to win a government prize for making an accurate range finder for the army. Eventually the instrument-making business of Barr and Stroud was founded and by 1913 both professors had resigned from the University to concentrate full-time on the company.[49] By this time the business was located in Ashton Lane adjoining the University.

Another instrument-making business with University connections was Kelvin and White. Sir William Thomson, later Lord Kelvin and a Professor in the University, became associated with James White when the latter made classroom demonstration models for him. Eventually Thomson, always seeking practical applications for his discoveries, became a partner in the company which had been started by White. Lord Kelvin was the adviser to the Atlantic Telegraph Company and White made the submarine and other instruments to Kelvin's instructions. From February 1858 to November 1900 Kelvin took out 51 patents, all of which were manufactured by Kelvin and White and their 400 strong workforce.[50] It has been written that the real significance of Kelvin 'was the way in which, to his own profit, he acted as a bridge between science and industry.'[51]

Although an awesome figure in the world of science and industry Lord Kelvin's connection with the University of Glasgow was to remain during his lifetime. He arrived in Glasgow from Ireland in 1832 when his father became Professor of Mathematics at the University. William became a student at the University when he

was aged ten and a half years. His brother James entered at the same time, two years his senior. They both won many prizes at the University. After finishing his education at Glasgow and Cambridge Universities he was appointed to the Chair of Natural Philosophy (Physics) in Glasgow at the age of 22 years. In 1899 he retired from his Chair and immediately enrolled in the University as a Research Student. The 1899 Matriculation Album shows Kelvin's age as 75 with attendance at the University: 1834-35 to 1840-41, student; 1846-1899, Professor. He died in 1907 a figure of immense pride to Glasgow.[52]

Other family business connections with the University were Sir Henry Mechan, Engineer, who funded the Henry Mechan Chair of Public Health in the University. Sir Henry was also the Rector's Assessor 1925-1931.[53] Shipowners Leonard Gow and William Guthrie Gardiner and his brother Sir Frederick C Gardiner donated money to establish a lectureship and Chairs respectively.[54] Sir Daniel Macaulay Stevenson, coal exporter and Lord Provost of Glasgow 1911-1914, donated money to establish a lectureship in Citizenship and Chairs in Spanish and Italian.[55] Mr. and Mrs. George Loudon of Loudon Machine Tool Makers and Engineers bequeathed money to fund a Lectureship[56] and, as a final example to show the relationship the University had with the business elites, in 1902 mine owner James S Dixon donated money to establish a Lectureship in Mining. Five years later a further donation enabled a Chair to be founded.[57]

Prominent businessmen and industrialists held positions within the University's system of government, including positions as Assessors. For example Sir John Ure Primrose, merchant miller and former Glasgow Provost, was a member of the University's Court, holding at various times the positions of Chancellor's Assessor and Rector's Assessor. Similarly, the Chairman of the North British Locomotive Company and the Steel Company of Scotland, Sir William Lorimer, was the Chancellor's Assessor for 14 years.[58] Additionally, Sir William was a Director of the Glasgow and South Western Railway and the National Bank of Scotland and a Trustee of the Caledonian Trust and Scottish Western Investment Company. In his public life, Sir William was a Governor of Hutcheson's Educational Trust and a Governor of The Royal Technical College,

served on the Juvenile Delinquency Board, was the Deacon of the Incorporation of Hammermen and a Justice of the Peace. He was knighted in 1917.[59]

In stark contrast to the working classes, the Glasgow elite lived very well in the sweeping terraces of Glasgow's west end with stained glass and art nouveau decorations.[60] New suburbs for the wealthy were built to the south and west of the city and efficient regional transport networks drew the rich beyond the city boundaries. Holiday and family homes were built or acquired in such popular and accessible seaside resorts as Helensburgh. Consequently, during summer months, town houses were only used by men during the week to enable them to attend to their business affairs.[61]

The very wealthy merchant elite had always maintained family homes and small estates outwith the city. But the pattern of family housing that had developed by 1900 was new and distinct because a larger number of Glasgow's middle classes were able to live beyond the city boundaries. The impact of this movement of the rich out of the city was striking in at least one aspect. The low mortality rates of the wealthy west end was attributed to the higher living and housing standards of the area and to the fact that much of the west-end population, especially the women and children, spent up to six months in the year outside the city.[62]

As the century opened Britain was at war with South Africa, a conflict that would continue until mid-1902. The country could then applaud a conquest by the greatest imperial power of the time. The imperial connection was the basis of Glasgow's economic success. The 'second city of the empire' had demonstrated this with Clyde-built ships and engineering products sent all over the world. Scottish soldiers, missionaries and colonists were all engaged in the imperial mission and these people had formed a focus of pride for those remaining in Scotland. Perhaps this focus helped to divert their attention away from the grim realities of a society which had some of the worst social conditions in western Europe.[63]

Other remarkable events which diverted attention away from the inadequate housing and social conditions for the lower classes of Glasgow were the Exhibitions of 1888, 1901 and 1911.[64] These differed in focus. The Glasgow International Exhibition of

1888, staged in the West End Park, featured Scotland and Glasgow's industrial and scientific achievements,[65] prodded no doubt by the success of the Edinburgh Exhibition of two years earlier[66] and that of the Manchester Exhibition of a few years before.[67] The 1888 exhibition was a great success with a profit of £46 000 and 5 748 379 visitors, easily beating Manchester's 4 765 137 attendance figure. The huge success of Glasgow's first exhibition more than confirmed the city's immense pride in itself. The profits from this exhibition were to go towards setting up a new Art Gallery, Museum and School of Art [68]

The 1901 Exhibition was very much like the previous one and even held in the same venue. The exhibition opened 2 May, experienced excellent weather and closed on 9 November 1901, having had 11 497 220 visitors. The profit it realised went towards improving the West End Park and the new Art Galleries.[69]

In the summer of 1911 Glasgow hosted its third great exhibition, only 23 years after its first. This exhibition was opened 3 May and staged with the purpose of raising sufficient funds to help endow a Chair of Scottish History and Literature at the University of Glasgow.[70] The previous two exhibitions had been labelled 'international'; this one was definitely 'national', even down to the main reason for it being staged. Nationalism was now in the air.[71]

Not everybody was satisfied at the idea of the 1911 exhibition being staged for the purpose of endowing a Chair in the University and there was violent controversy for two distinct reasons. In the first place the need for the Chair was questioned and secondly, the method of raising the money was frowned upon in some circles.[72] Professor Dudley Medley opposed the Chair on the grounds that he already taught Scottish history and deplored the agitation for the Chair on the grounds that its establishment could only encourage 'regrettable nationalist sentiments'.[73]

The most serious critic of the method used to raise the required money was David Murray of the University Court. Although the theme of the exhibition was to be historical, he claimed that this aspect would not raise the cash. Instead, everybody knew that the money would be raised by the side-shows. And by doing this the

organisers had simply put the University on the same footing as one of these 'water-chutes, flip-flap, cinematograph and the skittle alley, the tea-room, the drinking bar, the smoking parlour, and the other adjuncts of a variety entertainment.'[74] The exhibition, however, attracted 9 369 375 visitors and in April 1912 the University Court was advised that £15 000 was available to endow the new Chair. Robert S. Rait, later to be the Principal, was the first incumbent.[75]

These three hugely successful exhibitions promoted the city and its leaders against their local and distant rivals, especially when Victoria visited the 1888 exhibition. This visit was immortalised in a painting featuring over two hundred members of the local and regional elite.[76] But it was not only the elite who gained satisfaction from the staging of the exhibitions. The middle-class businessmen were able to show their wares and also give expression to the finer side of their natures in the form of the fine art section of the exhibitions. At each event the Machinery and the Palace of History at the 1911 exhibition and the Fine Art section at the 1901 exhibition were housed in different halls, demonstrating the separateness of the two sides of life.

Another aspect of the exhibitions was the temporary nature of the buildings, mainly prefabricated plaster on a sacking base for the 1888 event and a steel-framed asbestos covered copy of the Falkland Palace for the Palace of History at the 1911 exhibition.[77] Perhaps this signified the state of Glasgow's economy at the time. To the casual observer all looked solid and ever-lasting but the truth was that the fabric was superficial and insubstantial, which the winds of change were only awaiting an opportunity to bring crashing down. Indeed, this represented a veritable facsimile of the heavy industries of Glasgow and district in the years immediately preceding the First World War.

In 1901 Britain mourned the death of Queen Victoria who had reigned since 1837. So ended the Victorian era and the Edwardian period began with the accession of Edward VII and his wife Queen Alexandra. Along with the rest of the country, Glasgow mourned the death of Victoria, cheered the Boer war victory and then continued with its mission to continue flourishing. Unfortunately, after the First World War had

ended, the economy, which was the linchpin of nineteenth century Scottish greatness, lay ruined and exposed as over-reliant on the old, heavy, export-related industries.[78]

At the beginning of the century the civic government of Glasgow was described as operating under the banner of 'municipal socialism'.[79] Maver wrote that from 1896 the term 'municipal socialism' was increasingly identified with the brand of Progressivism espoused by councillors like Chisholm and Stevenson, and endorsed to a large extent by the Stalwart alliance.[80] Glasgow's civic leaders pursued a policy of municipal ownership and enterprise that far outstripped Joseph Chamberlain's socialist endeavours in Birmingham; Glasgow's rivals for the title of 'Second City of the Empire', making Glasgow the focus of attention for American social reformers.[81]

By 1900 municipal enterprises had grown and included the operation of the tramway system, a telephone system and the supplying of water, gas and electricity to the citizens of Glasgow.[82] At this time Lord Provost Chisholm led a movement that was committed to the municipalisation of anything that was a necessity or required the use of the streets.[83] Fisher lists the following services provided by the City: halls (1840), parks (1852), art galleries (1856), water supply (1859), baths and wash-houses (1878), labour bureau (1886), electricity supply (1892), public transport (1894), telephones (1901).[84] Civic leaders justified the public ownership of the utilities with the claim that 'these services belong to the order of natural monopolies; they could not be trusted to the uncontrolled charge of any private body, and certainly the first right, even duty, to administer them rests on the Corporation.'[85] Apparently, municipalisation made economic sense to a Town Council dominated by the city's mercantile and industrial elite.

But the excellent municipal facilities, including police, public health provision, parks, libraries and art galleries, had to be paid for by local taxation. In late nineteenth century Glasgow the burden fell on the occupiers of property and not the landlords. Consequently, there was no concerted pressure from any influential group to peg rising taxation. However, by the turn of the century a meaningful campaign was raised, with the most vociferous protesters being large commercial ratepayers rather than small property owners and rentiers.[86]

The right to vote in local elections was restricted to owners of property with an annual valuation of £10 and occupiers of business premises who paid an annual rent of £10. Permanent lodgers and those who received rent-free accommodation as part of their wages were also eligible to vote. Anyone who was in arrears with their rates were barred from voting and these were most likely to be the poorer members of the community. Unemployment amongst the working classes led to a reduction of income and consequently an inability to pay rates. The number of voters excluded rose from 12 834 in 1896 to 35 671 in 1909, indicating the extent to which the rates burden was increasing over time.[87]

From the beginning of the twentieth century there were frequent downturns in the economy which hit most industrial sectors. In 1908 the statistics showed the number of unemployed engineers had risen to 19.8 percent and the figure for shipyard workers was 24.1 percent. This state of affairs continued throughout 1909. Similar unemployment trends showed in the building trades but for them recession continued beyond 1911.[88]

Concurrent with cyclical unemployment was the rising cost of living. Between 1905 and 1912 this had risen 10 percent whilst the wages of skilled engineering craftsmen had risen only eight percent and that of labourers six percent.[89] The ensuing hardship led to about 7 000 applications in the first six months of 1908 for assistance from the Lord Provost of Glasgow's Distress Fund. By May 1909, 27.9 percent of all applicants for relief were described as 'tradesmen'.[90]

By 1900 Glasgow was aware of the problems that unemployment could bring. At this time no parish relief could be given to the unemployed able-bodied so this section of the workforce had to rely on private charity.[91] Such private charities as there were included soup kitchens, the Glasgow Unemployed Committee and church groups. The Local Charity Organisation Society provided shelters, work-schemes a 'Poor Children's Clothing Fund' and a 'Poor Children's Dinner Table'. The Lord Provost's Appeal, when launched, provided meals, coal, grocery vouchers and paid rent arrears to those deemed deserving.[92]

On two counts the University of Glasgow was involved in local charity work. In 1889 the Glasgow University Students' Settlement Society was formed with the stated object of carrying on social, educational and religious work. The Settlement consisted of a residence, club rooms and halls and was situated at 10 Possil Road, Garscube Cross. The work undertaken took various forms, including social clubs, Sunday meetings, a 'Poor Man's Lawyer', medical dispensary and a savings bank. In the residence there was accommodation for fifteen students overlooked by a warden. The affairs of the Society were in the hands of a President, Warden, Sub-Warden, Secretary, a four-man General Committee and a five-man Finance Committee.[93]

Following a higher degree ceremony in 1923 the Lord Provost, Sir Thomas Paxton, spoke to the students at their request and commented that there were various schemes for the alleviation of suffering in the city, and nobody had assisted more enthusiastically than the students.[94]

Also within the University, but organised solely by the female students, was the Queen Margaret Settlement Association, established 1897.[95] This Settlement was more directly and completely involved with social and charity work amongst local communities than that of the Glasgow University Students' Settlement Society. The first members put themselves at the disposal of the Charity Organisation Society (COS) to learn how it was organised and to assist in the Anderston district of Glasgow. The Association, when seeking assistance from the Queen Margaret students, stated that it 'promises to students with leisure a fine field for learning right methods of charity, and doing really helpful social work.'[96]

At first, in order to become familiar with the organisation of charity work, Queen Margaret volunteers assisted in the office of the COS and also helped to collect deposits for the Collecting Savings Bank 'in the crowded side streets and courts of Anderston.' Apparently this was an education itself for the mainly middle-class ladies of QMC. The volunteers called weekly on the depositors, 'hearing and seeing much of their life and learning many a thing besides the collecting of pence.'[97] Other duties undertaken at this time included the teaching of invalid children who could not attend

school in the normal way, organising Saturday playground games 'for the unhappy bairns who have not, with all their precocious experience of life, learned how to play together,'[98] and, some time later, an infant consultation clinic for the periodic weighing of new babies.[99]

As a consequence of the growth of industry, Highland migrants and Irish immigrants had flocked to the towns of the west of Scotland. These migrants and immigrants featured prominently in the expansion of the population of Lanarkshire generally and Glasgow particularly.[100] Table 1.1 shows the population growth of Glasgow 1861-1911 whilst Table 1.2 shows the population growth of Lanarkshire and Scotland over the same period

TABLE 1.1. POPULATION GROWTH OF GLASGOW 1861-1911

Year	Males	Females	Total	Percentage Increase	Area
1861	185 556	209 947	395 503	nil	Parliamentry Burgh
1871	230 995	246 737	477 732	20.8	Parliamentry Burgh
1881	236 593	251 995	488 588	2.3	Parliamentry Burgh
1891	277 798	288 042	565 840	15.8	Municipal Burgh
1901	373 540	388 169	761 709	34.6	Municipal Burgh
1911	381 304	403 192	784 496	3.0	Municipal Burgh

Source: The Third Statistical Account of Scotland, Glasgow, p.799.
Percentage increases calculated from source material to nearest decimal place.

TABLE 1.2. POPULATION GROWTH OF LANARKSHIRE AND SCOTLAND, 1861-1911					
	LANARKSHIRE			SCOTLAND	
Year	**Population**	**Percentage Increase**		**Population**	**Percentage Increase**
1861	241 853	nil		3 062 294	nil
1871	298 646	23.5		3 360 018	9.7
1881	431 144	44.4		3 735 573	11.2
1891	496 876	15.2		4 025 647	7.8
1901	577 618	16.2		4 472 103	11.1
1911	662 575	14.7		4 760 904	6.5

Source: The Third Statistical Account of Scotland, County of Lanark, p.114.
Percentage increases calculated from source material to nearest decimal place.

As with all raw population statistics of this period the material must be treated as indicative only. Boundary changes between Parliamentary and Municipal Burghs account for some of the apparent increases.[101] Police Boroughs which later integrated into what became known as 'Greater Glasgow' were: 1891, Maryhill, Crosshill, Hillhead, East and West Pollokshields, Govanhill. 1905, Kinning Park. 1912, Govan, Partick, Pollokshields.[102]

Although the rapid expansion of population caused social problems the people were needed by the expanding industries of the time to meet the world-wide demand for their products. The incomers also needed cheap housing fast, a recipe for the worst slum conditions in Europe during the nineteenth and early twentieth centuries.

Unemployment, slum dwelling and health were intertwined. Prior to the First World War, 31 percent of boys and 26.7 percent of girls aged two to ten years showed signs of rickets.[103] Dorothy Lindsay reported that there was a connection between diet and rickets. Her colleagues at the University of Glasgow, however, continued to believe long after the rest of the scientific world that rickets came not from lack of vitamins but from housing overcrowding and lack of exercise.[104]

Epidemics and death were regular visitors to Glasgow. Typhus, typhoid, scarlet fever, cholera, smallpox, whooping cough and even the bubonic plague frequently occurred at

different periods up to the First World War.[105] More common was bronchitis, pneumonia and tuberculosis. By the early twentieth century more Glaswegians died from pneumonia than from heart disease or cancer.[106] The high incidence of tuberculosis in Glasgow was inextricably linked with overcrowding in the slum properties of the city. Sanitary Inspectors complained to the Presbytery Commission that the Glasgow magistracy was excessively lenient to overcrowding landlords. John Mann jr. was also very scathing about the leniency of Magistrates to landlords and the negative results of this leniency.[107]

Prior to the First World War Glasgow Corporation was of relatively little help in providing houses for its needy citizens. In 1911 only 0.47 percent of the population lived in municipal housing compared with 0.61 in Edinburgh, 0.76 in London, 0.93 in Sheffield and 1.31 percent in Liverpool. Of the major cities only Manchester had a record worse than Glasgow's.[108] And yet between 9 and 60 percent of residents in Glasgow and many other burghs in the Scottish central belt lived more than two persons per room, a degree of overcrowding ten times that of Manchester.[109] Early in the century there was a tendency to focus on families with insanitary habits rather than housing needs. The insanitary needed to be provided with basic, functional housing such as described:

> [the requirements are] four bare walls, say of concrete, with an indestructable (sic) set-in fire place, and an indestructable (sic) bed-frame. So far as possible, no wood to hack or burn; no plaster to fall down; no paper to tear away; no fittings to carry off by the light of the moon; well-lit that there be no concealment of evil doings; with, of course, a sufficiency of air space and sanitary appliances.[110]

The author of these words, writing in 1902, was Dr. William Smart, Professor of Political Economy in the University.[111] Professor Smart was described as belonging to 'the younger flight' of University professors, having nothing in common with the dons of previous years who were usually members of the established church. The term 'younger flight' must have related to attitude, appearance and deportment because at the time of writing the Professor, born 1853, was almost 50 years of age.

Professor Smart gained an MA degree at Glasgow in 1882, spent 13 years in business and commenced his teaching career in 1886 when he was appointed Lecturer on Political Economy in University College, Dundee and, concurrently, in Queen Margaret College, Glasgow. He resigned the Dundee post in 1887 and from 1892 to 1896 lectured on Political Economy in the University of Glasgow and also in Queen Margaret's. In 1896 the Adam Smith Chair was founded in the University and Smart was appointed as the first incumbent. *The Bailie* commented that Smart had nothing in common with the dons of previous years because they were usually in clerical orders, wore a white neck-cloth, were prim and hard and 'affectation of some kind was part and parcel of his being' and 'Professor Smart is neither prim, nor hard, nor affected and never in his wildest moments of juvenile ambition, did he aspire to "wag his heid in a poopit."'[112]

In the Professor's eyes, the 'decent poor' and the undesirables, those who did not pay their rents on time or were the practitioners of unsanitary habits, should be segregated. In many of his writings Smart expressed his loathing of the man who would not work and of the earner of high wages who squandered it on alcohol to the detriment of his family. On one occasion he wrote that 'the only man I care to know is the Man who Works - who makes his living without hurting or burdening anybody.'[113] It was the duty of the Corporation to 'pull up the weeds' and house the anti-social in bare sanitary shelters, as described above, which they could not spoil.[114] Writing on another occasion, but on the same subject of caring for the deserving poor at the expense of the improvident, Professor Smart commented:

> Can the Corporation sift out this class? I think it can; by turning all the tenants on the street, and admitting into the new houses none but those who are bona fide small wage-earners. I know no way of forcing the others into better houses, paying more rent, but that of leaving them on the street if they don't. I say further that we are bound in honour to do this for the sake of the bona fide poor, for these high-waged improvident people are taking up house room to which they have no right, and, besides, raising rents on the decent poor.[115]

John Mann jr., Director of the Glasgow Athenaeum Commercial College, had expressed similar sentiments some thirteen years previously when he wrote 'I say eject

all bad tenants; drive them ruthlessly from pillar to post until they become tolerable, or leave the city, or find their resting-place somewhere under control'.[116]

In spite of the harsh sentiments expressed by Smart he was a self-professed socialist. Smart wrote in 1888 upon Karl Marx's history of the factory system, taken from *Das Kapital*.[117] When commenting upon Marx's work he wrote 'And here, if I am not mistaken, there is more undoubted justification of Socialism' His sympathies lay with the deserving poor and he thought that the criminals, the vicious and the drunkards should not interfere with the 'deserving poor.'[118].

Smart castigated the economists and employers who stated that men displaced by machines could be used to produce other articles required in the world. Unfortunately, jobs were difficult to find and, according to Smart, the man often had to send his wife out to work and his children to beg whilst the man himself lost his skills, his independence and his self-respect. The man was then in competition with the employed for the remaining jobs and 'it is this competition of unemployed with the employed that enables the capitalist to reduce his wages to the level of subsistence.'[119]

After further examples of the exploitation of men and women by employers, especially married women with children, Smart commented that Marx's critique if not a justification of Socialism it was at least a powerful arraignment of laissez faire. And: 'One thing must be said of Marx. He was no demagogue, but a quiet-loving scholar. His animus was against capitalism, not capitalists.'[120]

In almost Luddite terms Smart returned some 25 years later to the theme of labour being displaced by machines when he wrote: 'Where it [a machine] competes directly, this slave of the unwearying muscles, of the untiring energy first levels down the wages of the human worker to its own level, and in course of time passes him - is substituted by the employer for the man.'[121] Smart could see no future for this class of person who was in direct competition with the machine because the machine would always win the economic race. 'I see no future for them as a class. Low as their wages are, they will in all probably (sic) go lower.'[122]

John Mann jr., was another proponent for the segregation of the deserving and undeserving slum dwellers who should be housed. 'The industrious and the lazy, the provident and the improvident, the sober and the drunken, must be treated differently.'[123] Mann described one class as industrious, reputable and decent but poor due to low earnings. Each household in this class, through reasons of trade depression, illness or irregularity of work and the relatively high cost of living in Scotland[124] were earning about £1 per week. The second class were stated to be ill-doers, disreputable, vicious and criminal, often earning £1 'and double' each week. At the same time they were lazy, drunken, improvident, destructive, disorderly and able to afford high rents 'but making the gratification of their animal instincts the first consideration.' Included in this class were the habitual criminal offenders, the vagrants and the beggars.[125]

Unfortunately, growing alongside industrial expansion and unsanitary housing conditions was the problem of alcohol abuse. Drunkenness was rife in Glasgow, being frequently woven into the very fabric of working class life, with any excuse used to drink alcohol during the working day.[126]

In the Glasgow workshops of the early twentieth century a lot of money was spent on alcohol and a worker was thought to be less than a man if seen drinking milk or other non-alcoholic beverages. Many men had a deep-rooted conviction that they could not complete a day's work without the assistance of alcohol.[127] One writer on early twentieth century Scottish life stated that iron and steel founders on piece work, in common with men in other trades, left their place of work for the day once they had made a certain wage. This idleness and irregularity was blamed on alcohol which was used as a stimulant during the day by many workers.[128]

Because of such uses and abuses, alcohol was thought by the enlightened to be a great handicap to British employers in their competition with other countries for trade. Obviously, if this type of behaviour could be eliminated or even curtailed, then the employer would benefit financially. Some employers, though, used alcohol for reward and plied their workers with drink at the completion of a certain workload and at strategic times of the year.[129]

Many social commentators on the late nineteenth and early twentieth centuries still considered most cases of poverty amongst the working classes could be blamed upon alcohol consumption.[130] In an attempt to combat drunkenness the Glasgow authorities decided to regulate the number of licensed premises in the city. Following active efforts on the part of the magistrates and the vigilance of the temperance movement, the number of public houses fell from 1 546 in 1876 to 1 311 by 1907.[131]

A decision in 1905 to close all Glasgow city pubs on public holidays led to a mass exodus from the city to other areas where drink was available. The resulting mayhem caused by the incomers led to such an outcry from local residents that the following year the ban had to be lifted.[132]

Three years previously, Glasgow magistrates, concerned by the perceived threat to morality and public order, banned women from working in all public houses in the city. Consequently, pubs employing women would not have their licences renewed upon application. But, following protests by publicans, barmaids and the public, the appeal court reversed the decision in May 1902. Women, if they so chose, could be exposed to bad language, lewd suggestions, crude jests and other hazards encountered in the typical Glasgow pub.[133]

Despite these efforts, drinking and drunkenness continued to be the major social problem up to World War 1. The opinion of many middle class observers was 'that drunkenness is the prolific source of the major part of poverty, wretchedness and discomfort which exist.'[134] Unfortunately, drink became a convenient scapegoat for most social problems, placing the blame upon the individuals and thereby exonerating society generally for the sordid conditions in which many had to live.[135] However, despite the obvious divisions between the classes of Glasgow, there appeared to be something which might be described as homogeneity. In 1895 Albert Shaw of New York recorded that 'in all this expansion, Glasgow's character as an integral community has been exceptionally well-sustained.'[136]

THE ECONOMY

Prior to 1914 Glasgow had an industrial economy heavily dependent on the staple industries of coal, engineering and shipbuilding. These industries had ousted textiles from its previous dominant position although, to a lesser extent, textiles still had a role to play in the economy. It was an export oriented economy, vulnerable to shifts in world trade and whose ownership was based on the family firm. Even before World War 1 the economy was experiencing relative decline, but its weaknesses were obscured by the prosperity of the war years and the boom which followed the end of hostilities in 1918.[137]

The west of Scotland was very active in the field of mechanical engineering during the nineteenth century. Skills that had been acquired building and maintaining textile machinery, locomotives, steam boilers and machinery used in the shipbuilding industry were expanded and refined as the century progressed. Mechanical engineering requires a tremendous range of skills and the Glasgow area practised most of them. One nineteenth-century writer commented that Glasgow and its surrounding districts manufactured diverse products in iron and steel. These goods ranged between the smallest pins and the largest warships.[138] Some of the specialisms were textile machinery, machine tools, boilermaking, bridgebuilding, railway stock, colliery machinery, hoisting machines, sewing machines, road steamer traffic, agricultural machinery and instruments and gauges. The west of Scotland exported widely both coastwise to England and overseas to all parts of the developed and developing world.

Lack of investment, leading to archaic machinery, played a part in the decline of the textile industry as businessmen invested their money in the engineering and shipbuilding industries. Those who were willing to invest in modern buildings and machinery, such as the proprietors of the Glasgow Cotton Spinning Company, were able to make good profits.[139] Slaven commented that new products in thread and lace saved the cotton industry from extinction but fewer than 13 000 found employment in the traditional spinning and weaving sector in 1911.[140] By 1907 output and employment in the textile sector were only about half of those in the heavy industries.[141]

The first British compression-ignition, or diesel, engine was made in Glasgow by the Mirrlees Watson Company. There was a marked expansion in trade during 1910 and it was commented that the year would be remembered as that in which the diesel engine became definitely practicable for the propulsion of ocean-going vessels.[142]

The years 1911, 1912 and 1913 were exceptionally good years for Clyde trade. 1911 was then a record shipbuilding year with tonnage launched showing a 61 percent increase from 392 392 tons in 1910 to 630 583 tons in 1911. *The Glasgow Herald Trade Review* (GHTR) for that year reported that 'the shipbuilding and marine engineering industries have just passed through what has been the most remarkable year since the construction of ships began to take a leading place in the trade of the world.'[143]

The only obstacle to even more launchings was the high number of trade disputes in all sectors of industry. War broke out in 1914 and this was responsible for the large decrease in the output of new shipbuilding in Scotland, almost wholly on the Clyde.[144] Table 1.3 shows the annual gross registered tonnage output of Clyde shipbuilders from 1900 to 1914.

TABLE 1.3. ANNUAL OUTPUT OF CLYDE SHIPBUILDERS, 1900-1914. GROSS REGISTERED TONNAGE

Year	Tonnage	Percentage change
1900	486 337	nil
1901	511 990	+ 5.3
1902	516 977	+ 1.0
1903	446 869	- 13.6
1904	417 870	- 6.5
1905	539 850	+ 29.2
1906	598 841	+ 10.9
1907	619 919	+ 3.5
1908	355 586	- 42.6
1909	404 187	+ 13.7
1910	392 392	- 2.9
1911	630 583	+ 60.7
1912	640 529	+ 1.6
1913	692 601	+ 8.1
1914	460 258	- 33.6
Total	7 714 789	- 5.4

Source: *Glasgow Herald Trade Review* for the years shown
Percentages calculated correct to the nearest decimal place

One aspect of mechanical engineering for which Glasgow and district was world-famous was locomotive engineering with south-west central Scotland the most important area in Britain until the early years of the twentieth century. A survey of some of the leading industries of Glasgow and the Clyde Valley revealed that 'in the years before 1914 Glasgow was the biggest locomotive manufacturing centre in Europe and its overseas trade in steam locomotives was the biggest of any centre in the world.'[145] In 1903 three railway companies amalgamated to form the North British Locomotive Company which became established in Springburn. These three companies were Sharp, Stewart and Company; Dubs and Company and Neilson, Reid and Company, employing some 8 000 men.[146]

No overview of the Scottish engineering and shipbuilding industry may be considered complete without mentioning the firm of William Beardmore and Company Ltd. In the opening decades of the twentieth century Beardmore's emerged as the biggest Scottish engineering and steelmaking concern and the largest single employer in the west of Scotland.[147]

After 1910 the threat of war ensured that many Admiralty and military contracts were awarded to Beardmore's and the resources of the company were diverted to the manufacture of armaments and the building of warships.[148] The outbreak of war saw the company's factories at Parkhead, Dalmuir, Mossend, Coatbridge, Anniesland and Paisley become one of the biggest industrial groups in the country.[149] In 1913 Beardmore was created a Baronet and in 1921 he was honoured with the title Lord Invernairn of Strathnairn.[150]

The closing years of the nineteenth century found many engineers experimenting with the internal combustion engine and some established engineering firms in Glasgow ventured into vehicle manufacture. In 1899 the Albion Motor Car Company was founded and by 1913 it was producing over 500 vehicles annually. 1913 was the year the company abandoned the production of private cars entirely to concentrate on commercial vehicles to cater for the growing demands of industry.[151] By this time motor coaches had been added to their product range and in 1913 a total of approximately 2 400 vehicles were produced in Scotland.[152]

Aviation did not loom large in mechanical engineering but its presence was there. The development of the aeroplane led to remarkable advances in the construction of the internal combustion engine. The new engines, with their greater power for lighter weight ratios made flight possible. The *GHTR* commented:

> Whether the aeroplane has come to stay or not, its influence in this particular direction - which must date wholly from 1909 - must always remain a landmark in engineering progress. [153]

In 1895, Percy Pilcher, a lecturer in Naval Architecture at Glasgow University, made the first glider flight in Britain at Cardross in a glider built by himself. By 1899 he had designed a glider with a wheeled undercarriage and steel springs to absorb the shock of landing. He had also begun experiments on a petrol engine to be installed in the glider. These experiments were brought to a tragic end by his death as a result of an accident during a glider demonstration in 1899. The invention of the modern powered aeroplane was delayed until the Wright brothers success in 1903.[154]

Up to 1914 chemical production in Britain had been mainly of the heavy bulk type required for industrial processes. At the opening of the twentieth century Britain dominated the traditional heavy chemical industry whilst Germany dominated the new organic industry.[155] Glasgow and district was a natural focus for chemical manufacturers as a result of their association with the textile finishing industry and had been since the early 1800's. Charles Tennant and Co. of St.Rollox Chemical Works, Glasgow, was one of the biggest soda ash and chlorine producers in Britain.[156]

Sugar refining and brewing may also be legitimately classified amongst the chemical industries. In 1860 there were sixteen refineries in Greenock, three in Glasgow, one in Port Glasgow and two in Leith.[157] By 1900 there were only five left in Scotland.[158] In 1880 Glasgow had nine breweries large enough to pay excise duty but this had fallen to six by 1910.[159] Brewing was a mass production industry by the 1890's and, according to Donnachie:

> The Scottish brewers were generally leaders in the development of new products, and their grasp of the possibilities presented by new technologies and modes of business organisation kept several in the forefront of the trade before 1914.[160]

Seemingly, technical and scientific development brought changes to the scale of production and range of products in the Scottish brewing industry during the latter half of the nineteenth century and contributed much to the growing efficiency of the larger brewers. By the 1880's most of the larger Scottish brewers employed a trained chemist or analyst, whose main occupation was essentially that of a quality controller.[161] In 1871 there were 250 people employed in the brewing trade in Glasgow. This had risen to 564 in 1911.[162] Distilling reached Glasgow much later than brewing. In 1887 there were 129 distilleries listed as operational in Scotland. Of these there were nine in and around Glasgow.[163]

In addition to the industries discussed, iron and steel production and coal mining also grew as a direct consequence of the expansion of the shipbuilding industry. Prior to 1910 Scotland was divided for administrative purposes into two mining districts; the East of Scotland and West of Scotland. In this year the two districts were

amalgamated to form 'Scotland District (no.1).' The total coal output for the years 1900 to 1914 is shown in Table 1.4.

TABLE 1.4. WEST OF SCOTLAND COAL PRODUCTION 1900-1914

Year	People employed	tons of coal raised	Tons per person employed above and below ground
1900	44 949	14 105 138	313.8
1901*	56 524	17 733 912	313.7
1902	56 893	18 226 090	320.4
1903	58 113	18 593 799	320.0
1904	57 340	18 501 793	322.7
1905	57 230	18 172 207	317.5
1906	57 030	18 897 278	331.4
1907	60 094	19 336 975	321.8
1908	63 396	19 945 551	314.6
1909	63 458	19 351 120	304.9
1910**	137 873	41 335 132	299.8
1911	136 377	41 718 163	305.9
1912	143 302	39 518 629	275.8
1913	147 549	42 456 516	287.7
1914	146 168	38 847 362	265.8

Notes: 1901* Further areas transferred from East to West of Scotland
1910** East and West Scotland areas amalgamated to form one district. Consequently, figures 1910-1914 relate to all of Scotland and not only the West of Scotland District.
Source: Inspectors of Mines Reports for the years shown

Most of the coal mined in Scotland was produced without the aid of coal-cutting machines. In 1900 Mines Inspector John Ronaldson stated in his Annual Report that coal-cutting machines were not common in the west of Scotland. From the 12 which were in use in 1900 there was an estimated annual output of 232 500 tons of coal.[164] From 1900 onwards the number of coal-cutting machines increased annually to 913 in 1914 raising 9 12 577 tons.[165]

It was stated by Alexander Macdonald, President of the Miners' National Association, that lack of coal-cutting machines was not due to any reticence on the part of his members to use them. The miners were in complete agreement with the introduction of coal-cutting machinery. He claimed there was ' not a miner today...who would not

be glad to see the entire work done by machinery.'[166] From about 1890 there was a developing but relatively slow interest in electrically-driven mining machinery.

The period up to 1914 witnessed the introduction of more advanced technology and machinery, leading to changes in working practices throughout the dominant industries of the area. The very nature of this industrialised society created demands for a labour force which required education and training. At first on-the-job training only was practised but due to various internal and external influences this changed in time to the more desirable mix of on-the-job training and technical/scientific education.[167] In conjunction with its affiliated College, The Royal Technical College, the University of Glasgow utilised its expertise and provided facilities to educate men and women to take their places not only in the local industries and professions but those of the United Kingdom, the colonies and the rest of the world.

Even before the declaration of war in 1914 storm clouds denoting impending world conflict were gathering. And by some of the enlightened, Germany was highlighted as the possible foe. Early in 1913 there was a conference in Glasgow on the topic of universal military service for the defence of Britain in the event of war.[168] As part of his opening address, Sir J H A MacDonald commented:

> I am not going to suggest that our German friends...are about, within the next few days, to make an attack upon our shores....I take Germany because Germany is the country to which we are most exposed. Other countries might not so easily attack us, but Germany could do it easily if we failed in two things.[169]

The 'two things' were an efficient secret service able to give two to three weeks notice of any impending attack and, secondly, the ability of the Government to act on this information. Sir J H A MacDonald informed the conference that Germany had a huge and efficient army and urged eligible men to join the Territorial Force.

Speaking on the second day of the conference, Colonel J Drummond Young advised that a Home Defence Army was needed as the present Territorial Army could not cope. One of the biggest problems facing the present army was that too many of those presenting themselves for both the regular and the Territorial army were physically

unfit. In Glasgow 60 percent of all men who volunteered for the regular army were medically 'and otherwise' unfit. The figure for Manchester was stated to be 80 percent unfit.[170]

Colonel Young said that young men were simply not enrolling in the army in large enough numbers, despite the urging of the Government for these people to be patriotic. It was claimed that some unnamed Cabinet ministers appealed to the 'fair sex' to shun all men who would not give service for the defence of their country. Clergymen were also instrumental in the recruitment drive by appealing from the pulpit for young men to join the Territorial and Regular Armies.[171] It is little wonder that when the War actually started in 1914 these identical tactics were employed by the same people to ensure that men joined the armed forces; including the giving of white feathers by the 'fairer sex' to men whom they considered should not be at large but in one branch of the forces.

As it had since 1451, the University maintained its place in a changing society and adapted to the needs of the city. Writing in 1901 the Earl of Rosebery commented that the present University was full of vigour and vitality due to its ability to adapt to the needs of the age and the requirements of the people it served. And this adaptation had always to remain the philosophy of the University:

> We must perpetually watch and test our machinery and methods to make sure that they are abreast of the times. We cannot afford in the world-race of empire to slacken our educational methods. For the prize will be for the strenuous, and should Britain fail to make the best of the young minds and energies committed to her, it is safe to predict that our next Jubilee, if celebrated at all, will scarcely be a festival, and may be a regret.[172]

And in a similar vein '...Alma Mater has never failed in her duty to Scotland: hers has been the national spirit - respect for tradition and love of progress.'[173] These sickly-sweet words indicate the sentiments of the time, almost excessive 'Kailyard' expressions indicating a love of the past as shown in the writing of many others. C W Hill writes that 'Kailyard literature was peopled by shallow caricatures which many readers took to be genuine Scottish characters.'[174]

Perhaps the Jubilee celebrations of 2001 will be mainly to celebrate the fact that the University has been in existence since 1451, a matter of some 550 years, and not the industrial superiority of a once great Britain in which the west of Scotland played such a prominent part.

When Principal Story died in January 1907 Donald MacAlister was appointed Principal. Like others holding the position before him, Principal Story had been a minister of the established church. Breaking with tradition, MacAlister, a doctor of medicine, was the first layman to be appointed to lead the University. In 1908 he became Sir Donald when he was awarded the KCB.[175] Following the resignation of Sir Donald in 1929, to become Chancellor of the University, Sir Robert Sangster Rait, also a layman and Professor of Scottish History in the University, was appointed to the position of Principal. He served the University as its Principal until 1936.

Standing like a rock amidst the sea of change the University served and in turn was served by the Glasgow community. As James Coutts, former Registrar in the University, wrote in 1909:

> Searching, striving, and endeavouring, one generation of students rapidly follows another, and among office-bearers and teachers changes are also frequent. But, while members are ever coming and going, the University abides, and from the ability and faithfulness with which successive generations of her children render service to mankind in the many and various positions to which they are called, she gathers fresh power and fame with the lapses of ages. The one remains, the many change and pass.[176]

James Coutts could not have envisaged the upheaval to the world and the University within five years of writing the preceding passage. But, by adaptation, the University was to stand and continue serving those worthy of its attention.

CONCLUSION

And so immediately prior to the First World War the bricks of the west of Scotland economy were in place, as they had been for many years. The cracks which had appeared in the old structure by the first decade of the twentieth century had been plastered over and were apparently sound. But, economically speaking, fair weather had arrived from 1910 to boost the heavy industries and give the impression that once again the economy was standing firm.

This was not the case and, as following chapters will reveal, its deficiencies were to become all too obvious when hostilities ended in 1918. Once the initial post-war boom had ended about 1920, the structure was to prove inadequate and unable to withstand the foul weather which arrived in the guise of a full onslaught of competition from other countries. The apparently solid front wall of the Scottish heavy industries was to crumble until by the 1990's it was a ruin, one to be studied by the concerned population in the same manner as Pictish, Roman and fallen monuments of other bygone ages were examined.

This chapter has outlined the composition of the community in which the University played such an important part and has attempted to show that there was a wide variety of industrial activity in Glasgow and district. Initially textiles predominated but eventually gave way to the heavy industries. The region amply recouped the job losses that took place in the cotton industry through a vigorous rate of expansion in shipbuilding, mechanical engineering, the metallic trades and in other areas of manufacturing industry.[177]

The Glasgow society of the first decade of the twentieth century had a very large number of skilled and semi-skilled manual workers to service the diverse industries of the area. One commentator has stated that much of Glasgow's engineering industry called for craftsmen whose pride and personality were built around their skills and products and the creation and dissemination of engineering ability was a local achievement arising out of the values, energies and education of the men concerned.[178]

This indicates that pride in one's ability and the results of those labours was not the sole preserve of the city's elite. Marble edifices and fine buildings may have been the expression of the labours of this group but the pride in having 'served one's time' and the resulting artefacts gave pride to their craftsmen producers. After all, it was the economic benefit derived from these products that had helped Glasgow to become the 'Second City of the Empire.'

Without strong internal government and adequate finances the University could not function with maximum efficiency. Chapter 2 examines the financial and institutional arrangements in place between 1910 and 1914.

CHAPTER 1

FOOTNOTES

[1] Jennifer J Carter and Donald J Withrington eds. *Scottish Universities: Distinctiveness and Diversity* (Edinburgh 1992) pp.2-3
[2] W Innes Addison 'The University of Glasgow' in Magnus MacLean ed. British Association for the Advancement of Science. *Hand-Book on Archaeology, Education, Medical, and Charitable Institutions of Glasgow* (Glasgow 1901) p.130
[3] UG Calendar 1919-1920 p.37
[4] H Grey Graham 'Glasgow University Life in Olden Times' in *The Book of the Jubilee* A Leitch et.al. eds. (Glasgow 1901) p.112
[5] Ibid p.113
[6] Joe Fisher *The Glasgow Encyclopedia* (Glasgow 1994) p.388
[7] Idem
[8] A Duncan and M Moss 'The University of Glasgow: An Historical Perspective' in John Butt and George Gordon eds. *Strathclyde: Changing Horizons* (Edinburgh 1985) p.152
[9] H Grey Graham 'Glasgow University Life in Olden Times' p.12
Earl of Rosebery in the 'Foreword' to the same book p.2
[10] Fisher *Encyclopedia* p.388
[11] A Duncan and M Moss 'The University of Glasgow: An Historical Perspective' p.152
[12] W Innes Addison 'The University of Glasgow' p.130
[13] Duncan and Moss 'The University of Glasgow: An Historical Perspective' p.152
[14] W Innes Addison 'The University of Glasgow' p.131
[15] Duncan and Moss 'The University of Glasgow: An Historical Perspective' p.152
[16] A L Walker *The Revival of the Democratic Intellect* (Edinburgh 1994) p.24
[17] W Innes Addison 'The University of Glasgow' p.131
[18] Duncan and Moss 'The University of Glasgow: An Historical Perspective' p.153
[19] Joe Fisher *Encyclopedia* p.390
[20] Anon. *The Curious Diversity* (Glasgow 1970) p.9
[21] Idem
[22] Anon. *The University of Glasgow through five centuries 1451-1951* (Glasgow 1951) p.33
[23] Joe Fisher *Encyclopedia* p.390
[24] Idem
[25] *The Glasgow Herald* 3 May 1870 quoted in *The University of Glasgow through five Centuries 1451-1951* p.33
[26] Joe Fisher *Encyclopedia* pp.175-176
[27] R Herbert Story 'Relationship of Civic to Academic Life' in *Book of the Jubilee* p.7; *The Curious Diversity* p.21
[28] Nicholas J Morgan 'Building the City' in *Glasgow Vol. 2* p.9
[29] R Herbert Story 'Relationship of Civic to Academic Life' p.8
[30] UG Calendar 1919-1920 p.42
[31] Joe Fisher *Encyclopedia* p.388

[32] *Ibid* p.43

[33] G E Davie *The Democratic Intellect: Scotland and Her Universities in the Nineteenth Century* (Edinburgh 1964) p.97; Walter M Humes 'Science, Religion and Education: A Study in Cultural Interaction' in Walter M Humes and Hamish M Paterson eds. *Scottish Culture and Scottish Education 1800-1980* (Edinburgh 1983) p.116

[34] Walter M Humes Ibid p.117

[35] Carter and Withrington *Scottish Universities* p.6

[36] The function of these officers is described in Chapter 2.

[37] W Hamish Fraser 'Let Glasgow Flourish' in *Glasgow Vol. 2: 1830-1912* p.1 W Hamish Fraser and Irene Maver eds. (Manchester 1996)

[38] Ibid p.3

[39] T C Smout *A Century of the Scottish People1830-1950* (London 1987) p.109

[40] Ibid p.110 and Stana Nenadic 'The Victorian Middle Classes' in *Glasgow Vol. 2* p.272

[41] Nicholas Morgan and Richard Trainor 'The Dominant Classes' in *People and Society Vol.2* pp.103-105.

[42] D McCrone 'Towards a Principled Society: Scottish Elites in the Twentieth Century' in *People and Society in Scotland Vol. 3, 1914-1990* eds. Tony Jackson and James H. Treble (Edinburgh 1994) pp.176-185.

[43] William R Brock *Scotus Americanus* (Edinburgh 1982) p.170

[44] Table iv, p.xxxiii *Census of Scotland*, 1901, vol.iii. From David McCrone 'Towards a Principled Society: Scottish Elites in the Twentieth Century.' in *People and Society in Scotland* Vol.3,1914-1990 eds A Dickson and J Treble (Edinburgh 1994) p.175

[45] This is an active area of research. See Richard H Trainor 'The Elite' in *Glasgow Vol. 2*... pp.227-264 In another publication Nicholas Morgan and Richard Trainor refer to this same group of people as 'The Dominant Classes' in a chapter with the same title in *People and Society in Scotland Vol.2 1830-1914* eds. W Hamish Fraser and R J Morris (Edinburgh 1990) p.103. See also David McCrone 'Towards a Principled Society: Scottish Elites in the Twentieth Century' pp.174-200; Robert D. Anderson *Education and Opportunity in Victorian Scotland* (Edinburgh 1989) Ch. 8, pp.294-335.

[46] Stana Nenadic 'The Victorian Middle Classes' in *Glasgow Vol. 2* p.281

[47] John Butt 'The Industries of Glasgow' in *Glasgow Vol. 2* p.97

[48] Richard H Trainor 'The Elite' in *Glasgow Vol. 2* p.248

[49] Leslie L Forrester 'Technical Education and the Economy of the West of Scotland 1870-1914' Unpublished Ph.D thesis University of Strathclyde 1991 pp.46-47

[50] Ibid p.47 See also Fisher *Encyclopedia* p.273

[51] William Ferguson *Scotland 1689 to the Present* (Edinburgh 1994) p.318

[52] H S Carslaw 'Lord Kelvin: his Student Days in Glasgow' in *Book of the Jubilee* pp.157-159; Fisher *Encyclopedia* p.273 See also *The Five-Hundred Year Book* published by The Students Fifth Centenary Committee of the University of Glasgow (Glasgow 1951) pp.21-23

[53] UG Calendar 1929-1930 p.192

[54] Ibid pp.185 and 189

[55] Ibid pp.248 and 116-117

[56] Ibid p.253

[57] James Coutts *A History of the University of Glasgow 1451-1909* (Glasgow 1909) £16 500 in total was donated. pp.457 and 467-468

[58] See Table 5.12 Also Richard H Trainor 'The Elite' in *Glasgow Vol. 2* p.233

[59] A Slaven & S Checkland eds. *Dictionary of Scottish Business Biography Vol.1* (Glasgow 1986) pp.113-115

[60] Smout *A Century of the Scottish People* p.12

[61] Stana Nenadic 'The Victorian Middle Classes' in *Glasgow Vol. 2* p.283

[62] Idem

[63] Richard J Finlay 'National Identity in Crisis: Politicians, Intellectuals and the 'End of Scotland' ' in *History* No. 79 (1994) p.242

[64] Other exhibitions were:1890-91 'The East End Industrial Exhibition of Manufactures, Science and Art' the profits of which were for 'an institute for the intellectual and social improvement and recreation of the inhabitants of the east end of Glasgow' The result was the Peoples Palace. 1895-96 'National Trades and Industries Exhibition'. Both these exhibitions were held in the Duke Street Reformatory Buildings. Fisher *Encyclopedia* p.133

[65] James Schmiechen 'Glasgow of the Imagination: Architecture, Townscape and Society' in *Glasgow Vol.2* p.504

[66] John Butt 'The Industries of Glasgow' in *Glasgow Vol. 2* p.107

[67] Stana Nenadic 'The Victorian Middle Classes' in *Glasgow Vol. 2* p.293

[68] Fisher *Encyclopedia* pp.130-132

[69] Fisher *Ibid* p.132

[70] Christopher Harvie *No Gods and Precious Few Heroes. Scotland Since 1914* (Edinburgh 1993) p.1

[71] W Hamish Fraser 'Introduction: Let Glasgow Flourish' in *Glasgow Vol. 2* p.6

[72] Anon *The Curious Diversity* p.65

[73] Ibid p.66

[74] Ibid pp.66-67

[75] Ibid p.67 and Fisher *Encyclopedia* p.132

[76] Richard H Trainor 'The Elite' in *Glasgow Vol. 2* p.248

[77] Fisher *Encyclopedia* p.132

[78] Richard J Finlay 'National Identity in Crisis....' p.243

[79] Fraser and Maver 'Tackling the Problems' in *Glasgow Vol. 2* p.430

[80] Irene Maver 'Glasgow's Civic Government.' In *Glasgow Vol.2* p.472. See also pp.443, 468, 474, 476, of the same work

[81] Iain G C Hutchison 'Government' in *Scotland in the 20th Century*. T M Devine and R J Finlay eds (Edinburgh 1996) pp.47-48

[82] Fraser and Maver *Glasgow Vol. 2* p.430

[83] Idem

[84] Fisher *Encyclopedia* p.231

[85] Irene Maver 'Glasgow's Civic Government' in *Glasgow Vol. 2* p.468

[86] Ibid p.475

[87] Ibid p.470

[88] Fraser and Maver 'The Social Problems of the City' in *Glasgow Vol.2* p.381

[89] Ibid p.374

[90] Ibid p.382

[91] Richard Rodger 'The Labour Force' in *Glasgow Vol. 2* p.163

[92] Fraser and Maver 'Tackling the Problems' in *Glasgow Vol. 2* p.430

[93] UG Calendar 1910-1911 p.597

[94] *Glasgow Herald* 22 June 1923 in University of Glasgow Scrap Book No. 6 p.49

[95] Helen M Nimmo 'Some Recent Notes and Recollections of Queen Margaret College Life' in *The Book of the Jubilee* (Glasgow 1901) p.154

[96] Idem

[97] Ibid p.155

[98] Idem

[99] Fraser and Maver 'Tackling the Problems' in *Glasgow vol.2* p.426
For the Settlement movement see C M Kendall, 'The Queen Margaret Settlement, 1897-1914: Glasgow Women Pioneers in Social Work', unpublished M Litt thesis, University of Glasgow, 1993

[100] John Butt 'Industrial Relations in the Cotton Industry' in *Scottish Textile History* pp.140-142

[101] See Jeanette Brock 'Spurious Migration in the Scottish Census' in *Scottish Economic and Social History, Vol. 9 1989* p. 85.

[102] Fisher *Encyclopedia* p.231. See also Irene Maver 'Glasgow's Civic Government' in *Glasgow Vol.2* pp.441-485

[103] Fraser and Maver 'The Social Problems of the City' in *Glasgow Vol.2* p.362

[104] Fraser and Maver 'Tackling the Problems' in *Glasgow Vol. 2* p.432

[105] Fraser and Maver 'The Social Problems of the City' in *Glasgow Vol. 2* pp.353-357

[106] Ibid p.358

[107] John Mann jr., 'Better Houses for the Poor' p. 113

[108] Fraser and Maver 'Tackling the Problems' in *Glasgow Vol.2* pp.422-423

[109] R Rodgers 'Crisis and confrontation...' p.27

[110] Fraser and Maver 'Tackling the Problem' p.432

[111] William Smart *The Housing Problems and the Municipality* (Glasgow 1902) p.24

[112] *The Bailie* No. 1536 26 March 1902 p.2

[113] William Smart 'The Economic Dislocation of the War' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xlvi 1914-1915 p.17

[114] *The Bailie* No. 1536 26 March 1902 p.1

[115] William Smart 'Housing Problems' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xxxiii, 1901-1902, p.150

[116] John Mann jr. 'Better Houses for the Poor - will they pay?' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xxx 1898-1899 p.113

[117] William Smart 'Factory Industry and Socialism' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xix 1887-1888 pp.22-45

[118] Ibid p.40

[119] Ibid p.38

[120] Ibid p.43

[121] William Smart 'Second Thoughts of an Economist' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xliv 1912-1913 p.25

[122] Idem
There is a beautiful poem by Louis Untermeyer about the use of machines in industry. The poignancy of the poem lies in the last stanza.

Portrait of a Machine

What nudity as beautiful as this
Obedient monster purring at its toil;

Those naked iron muscles dripping oil,
And the sure-fingered rods that never miss?
This long and shining flank of metal is
Magic that greasy labour cannot spoil;
While this vast engine that could rend the soil
Conceals its fury with a gentle hiss.

It does not vent its loathing, it does not turn
Upon its makers with destroying hate.
It bears a deeper malice; lives to earn
Its master's bread and laughs to see this great
Lord of the earth, who rules but cannot learn,
Become the slave of what his slaves create.
In *Fresh Fields* (London 1957) p.118

123 Mann 'Better Houses for the Poor....' p.85

124 R Rodger 'Crisis and confrontation....' pp.31-32

125 Mann 'Better Houses for the Poor....' p.85

126 W Knox 'The Political and Workplace Culture of the Scottish Working Class,1832-1914' in *People and Society in Scotland, Vol.2 1830-1914* p.146

127 *Idem*
B Harrison *Drink and the Victorians* p.39

128 A Scott 'The training of Youth: Supervision of Lads from their Fourteenth till their Seventeenth Year' in *Royal Philosophical Society of Glasgow Proceedings* Vol. XXVIII, 1906-1907 p.168

129 Knox *Political and Workplace Culture*.... p.146
Harrison *Drink and the Victorians* p.39
Donnachie 'World War 1 and the Drink Question: State Control of the Drink Trade.' SLHS Journal No. 17 1982 pp.19-26

130 Fraser and Maver 'The Social Problems of the City' in *Glasgow* p.382
R Rodger *Employment, Wages, Poverty*.... pp.163-165

131 Ibid p.383

132 Fraser and Maver 'Tackling the Problems' in *Glasgow* Vol. 2 p.431

133 Henrietta Heald ed. *Chronicle of Britain and Ireland* (London 1992) p.1023

134 Fraser and Maver 'The Social Problems of the City' in *Glasgow Vol. 2* p.383

135 Idem

136 Irene Maver 'Glasgow's Civic Government' in *Glasgow* Vol. 2 p.442

137 W Knox 'Class, Work and Trade Unionism in Scotland.' in *People and Society* Vol.3 p.109

138 David Bremner *The Industries of Scotland* p.133

139 A Slaven *The Development* pp.124-125

140 Ibid p.165

141 J Butt *Industrial Archaeology* p.25

142 *The Glasgow Herald Trade Review (GHTR) 30 December 1910*

143 *GHTR 29 December 1911*

144 *GHTR 30 December 1914*

145 British Association *Some of the Leading Industries of Glasgow and the Clyde Valley* (Glasgow 1876) p.105

[146] J R Hume *Industrial Archaeology of Glasgow* p.80
North British Locomotive Company Commemorative handbook, 1953 p.9
[147] J R Hume & Michael Moss *Beardmore, the history* p.1
[148] Ibid p.4
[149] Ibid p.5
[150] Ibid p.346
[151] *Third Statistical Account, Glasgow* p.214
[152] S B Saul *Technological Change: The United States and Britain in the Nineteenth Century* (London 1970) p.30
[153] *GHTR 30 December 1909*
[154] *Third Statistical Account, Glasgow* p.214
[155] L F Haber *The Chemical Industry 1900-1930. International Growth and Technological Change* (Oxford 1971) p.10
W J Reader *ICI: A history, Vol.1, The Forerunners 1870-1926* (London 1970) pp.3 and 9
[156] Carol Kennedy *ICI. The Company that changed our Lives* (London 1986) pp.10-11
W J Reader *ICI*....p.101
[157] J MacKinnon *The Social and Industrial History of Scotland* (London 1921) p.126
[158] J Butt *Industrial Archaeology* p.25
[159] I Donnachie *History of the Brewing Industry*....p.152
[160] *Ibid* p.153
[161] *Ibid* p.183
[162] *Ibid* p.198
[163] Alfred Barnard *The Whisky Distilleries of the UK* p.13
[164] *Inspector of Mines Report 1900*
[165] Ibid 1914
[166] A Slaven *The Development of the West of Scotland*....p.16
[167] Forrester Ph.d. p.80
[168] Sir J H A MacDonald Opening Address 'Conference on The Proposal of Universal Military Service for the Defence of the Empire' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xliv 1912-1913 pp.190-226.
This was a two-day conference; 29 January 1913 and 26 February 1913
[169] Ibid p.192
[170] Ibid pp.211-212
[171] Ibid pp.209-210
[172] The Earl of Rosebery 'Foreword' *The Book of the Jubilee* p.2
[173] Ibid p.vii
[174] C W Hill *Edwardian Scotland* (Edinburgh 1976) pp.62-63 lists the following as examples of 'Kailyard' books: Ian Maclaren (Rev. John Watson), *Beside the Bonnie Briar Bush* (1894), *The days of Auld Lang Syne* (1895); Samuel R. Crockett, *The Sticket Minister and Some Common Men* (1893), *The Lilac Sun-Bonnet* and *The Raiders* (1894), *The Black Douglas* (1899); James Matthew Barrie *Auld Licht Idylls* (1888) *A Window in Thrums* (1889); and Rev. William Robertson Nicholl *A Life of William Maclaren* (1908)
[175] James Coutts *A History of the University of Glasgow* p.455
[176] Ibid p.475

[177] J H Treble 'The Occupied Male Labour Force' in *People and Society in Scotland Vol, 2 1830-1914* W H Fraser and R J Morris, eds. p.174
For further details of some economic aspects of this chapter see: Forrester Ph.D., Chapter 1 p.4 ff

[178] S G Checkland *The Upas Tree* (Glasgow 1981) p.3

CHAPTER 2

The institutional arrangements 1910-1914

This chapter will look in depth at the University's tools of internal government, the institutional arrangements. This is important to understand because the efficiency of the structure in peacetime will give indications of the University's ability to conduct its affairs on a war footing. The structure of government will be examined in order to determine how the University functioned in these pre-war days. Some of the important proceedings of the governing bodies will be discussed in order to observe the relationships between the different arms of internal government. These relationships did not always run smoothly, including a difference of opinion between the University Court and the General Council.

Finances were always important to the efficient functioning of the University. Without adequate funds upon which to draw, Glasgow would have been more akin to a museum-piece, something stagnant but redolent of glories long-past. For this reason the funding of the University up to and including 1914 will be examined in some detail. The financial structure of government is scrutinised to determine the origin and destination of revenue received. Sources of revenue included Treasury and Parliamentary grants, both important agencies for income by the twentieth century. Following the First World War the University Grants Committee was formed to coordinate the Treasury and Parliamentary grants.

Another important origin of revenue was the Carnegie Trust. This was the interest earned on a sum of money set aside by Scottish-born Andrew Carnegie and was shared by the four Scottish universities. Carnegie had accumulated vast wealth from his steel-making and associated interests in the United States and in 1901 decided to set up a

Trust Fund to dispense some of his fortune in his native Scotland. Eligible students received financial help with their fees from the same source.

There were two major issues and several smaller ones which affected the four Scottish universities during this pre-war period. These issues included the introduction of a composite/inclusive fee to be adopted throughout Scotland, and the matter of preliminary entrance qualifications. The reasons for these issues being raised at this time are investigated and the importance and relevance of the outcome for Scottish higher education considered, especially as it affected the University of Glasgow.

Also briefly discussed is the growing importance of science in Britain during the latter part of the nineteenth and early twentieth centuries. Enlightened businessmen were awakening to the fact that Britain was being left behind by Germany, the USA and some continental countries in many aspects of the economy such as finer chemical production, the electrical industry and motor car production. Scotland's dependence upon the heavy industries was starting to show strains and, although at this time not fully appreciated, diversification into more science-based industrial activities was required.

Of more interest, and therefore importance to Glasgow than the teaching of science, was the desire to provide commercial education within the University. Although commerce was taught in Glasgow at the Commercial College, the University, at different times, thought that it could provide courses of degree standard leading to a Bachelor of Commerce qualification. This topic was discussed over many years and the machinations of the interested parties and the outcome are fully reviewed.

Another topic which had involved the University over many years was the attempt by The Royal Technical College to become an affiliated college of the University. Almost from the first year the Royal College was organised in 1886 as the Glasgow and West of Scotland Technical College it had sought affiliation. Affiliation would give more prestige to its Diploma and, very important, allow it to share in grants allocated by the University Grants Committee. Originally these attempts had been rebuffed by the University but eventually, after deciding that there was a distinct advantage to itself,

affiliation was finally agreed upon immediately prior to the First World War. The negotiations involved are traced from their beginning in 1888 until successful completion in 1913.

INSTITUTIONAL ARRANGEMENTS

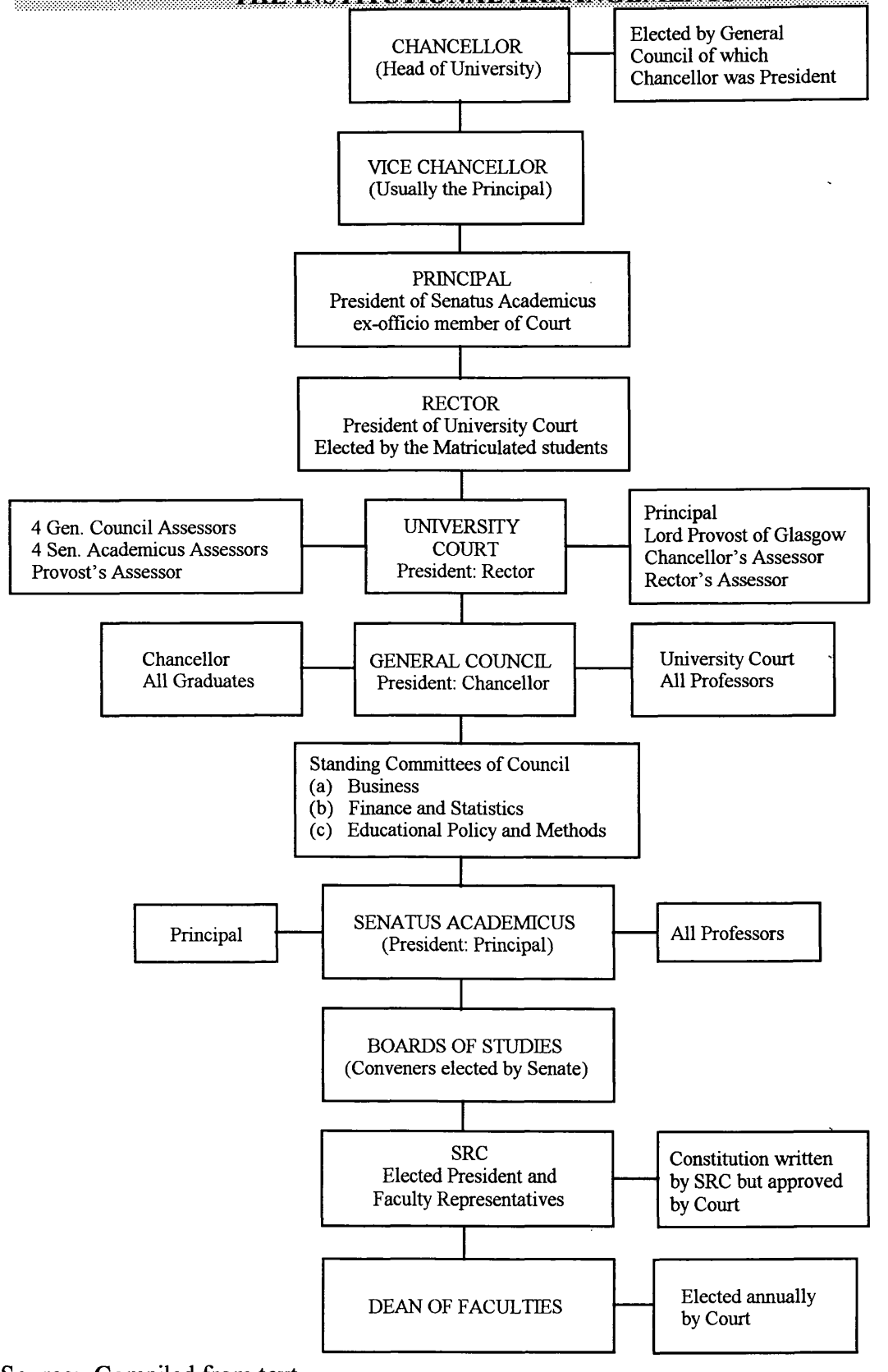
Over the period covered by this thesis, 1910-1930, the University of Glasgow operated under the Universities (Scotland) Act of 1889. This Act gave the Scottish universities additional powers to those initially granted under the Universities Act, 21 and 22 Vict; chap. 83, (1858). The 1858 Act had established the University Court and the General Council, a Rector chosen by the students and a Chancellor chosen by the graduates. The 1889 Act greatly enhanced the size and power of the Court. Prior to the passing of the 1889 Act a Royal Commission was appointed in 1876 and reported in 1878.

Andrew Lockhart Walker sees these three Acts, and the Royal Commission which reported in 1831, as a seesaw struggle for the soul of Scotland's universities.[1] By this he was referring to the Anglicisation of Scotland's universities. The 1858 Act introduced graduation with honours 'stimulated no doubt by the success of the Oxford honours schools and the Cambridge triposes.'[2] By the 1889 Act the universities of Scotland broke away from a system that had evolved over centuries, which had a close relationship with continental methods[3] in favour of 'a piecemeal, opportunistic policy designed to conciliate the English rather than impress the world.'[4] Walker is strongly convinced of the English influence in the Scottish Acts and argues against the ideas of Walter M Humes who warns against looking for an English conspiracy.[5]

There were also other bodies within the University with specific areas of responsibility. These included the Students' Representative Council (SRC) and three Standing Committees. The SRC was elected annually by the Court and the three Standing Committees reported directly to the Council. Whenever circumstances dictated, *ad hoc* committees and sub-committees were formed, only to be disbanded when their work was done.

A profile of the Officers of the University and the structure of government is given in Table 2.1. To enable the structure of government to be easily traced this Table is schematic.

TABLE 2.1. UNIVERSITY OF GLASGOW. THE INSTITUTIONAL ARRANGEMENTS



Source: Compiled from text

CHANCELLOR AND VICE CHANCELLOR

The Chancellor was the head of the University. He, or in his absence, the Vice Chancellor, had the privilege of conferring degrees upon those found qualified by the Senate. The Vice Chancellor could confer degrees but was not allowed to take over any other duties. The office of Vice Chancellor was usually held by the Principal. The Chancellor was elected by the General Council of which he was President. This office was held for life. The Assessor in the University Court was nominated by the Chancellor. From 1904 to 1934 the Chancellors of the University were: 1904 to 1908, William, First Baron Kelvin of Largs; 1908 to 1929, Archibald Philip, 5th Earl of Rosebery and Midlothian; 1929 to 1934, Sir Donald MacAlister Bt. of Tarbert.[6]

PRINCIPAL

The office of Principal or, to give it the original title, Principal Regent of the College, dates back to the foundation of the University. The office was regulated anew by James VI in 1577 and was an appointment of the Crown. The Principal was president of the Senatus Academicus and also an ex-officio member of the University Court. From 1907 to 1936 the University was headed by only two Principals. When Principal William Story died in 1907 Donald MacAlister was appointed in his place, resigning in 1929. The post was then taken up by Sir Robert Sangster Rait, ex-Professor of Scottish History in the University, a position he had held since 1912.[7]

RECTOR

The Rector was elected by the matriculated students of the University divided into four nations. The four nations were: Natio Glottiana, consisting of all matriculated students born within the County of Lanark; Natio Transforthana, were the matriculated students born within any of the Counties of Aberdeen, Argyll, Banff, Caithness, Clackmannan, Cromarty, Dumbarton, Fife, Forfar, Inverness, Kincardine, Kinross, Moray, Nairn, Orkney, Perth, Ross, Shetland, Stirling, and Sutherland; Natio Rothseiana, consisted of the matriculated students born within any of the Counties of Ayr, Bute and Renfrew. The fourth nation was Natio Londoniana. These were the matriculated students not included in any of the other nations.

The University Court, after consultation with the Senate, was responsible for fixing the election date for selecting the Rector. The election month was to be either October or November but could not be later than the second Saturday in November. The Rector was the official President of the University Court and the office was held for a three year term.[8] Appendix 2.2 lists the Rectors of the University 1905 to 1931.

UNIVERSITY COURT
The Court consisted of:
Rector
Principal
Lord Provost of Glasgow
Assessor nominated by Chancellor
Assessor nominated by Rector
1 Assessor nominated by Lord Provost and the Town Council of Glasgow
4 Assessors elected by Senatus Academicus
4 Assessors elected by General Council

The Court was the executive for overseeing finance, legislation and staff appointments. Under the 1858 Act the University Court had the power to review all Senate decisions and to be a Court of Appeal from the Senatus Academicus. It could also, after contacting the Senate and Chancellor, effect improvements in the internal arrangements of the University; supervise the Professors and their teaching; fix class fees; discipline Senate members, including suspension for up to one year, and terminate their employment with the University if necessary.

In addition to these powers, the 1889 Act granted to the Court the right to administer the whole revenue and property of the University and to review any decision of the Senate appealed against by a member of the Senate. The Court could also review, on representation by members of the Senate or Court, any decision of the Senate. It could appoint professors, examiners and lecturers and recognise for graduation purposes the teaching of any college or individual teacher. The duties of the professors were defined and the right to discipline the Principal, professors, lecturers or any other person employed in teaching was confirmed. One-third of any committee could be appointed from non-Senate members by the Court and it could review any decision of the Senate regarding committee recommendations.[9]

All new ordinances framed by the Court were sent to the Senate, General Council and, of great importance in promoting harmony amongst the universities of Scotland, to the other Scottish universities for scrutiny, before being sent to the King in Council for approval. This was a reciprocal agreement and Glasgow received from the other three Scottish universities proposals for changes or amendments to their constitutions. Frequent conferences between the four Scottish universities, although not obviating disputes between them on proposed legislation, did limit the number of protracted disagreements. Sir Donald made the observation that 'within the reasonable limits imposed by certain common principles, the Scottish Universities are thus practically autonomous, subject only to the supervision of the Scottish Universities Committee of the Privy Council.'[10]

The Act of 1889 provided for representatives of Affiliated Colleges and other bodies, such as the Town Council, to have a place in the administration of the University. By this Act, for the first time the Town Council of Glasgow, in the form of the Lord Provost and his Assessor in the Council, had a voice in the affairs of the University. The Provost of Glasgow and his representatives had a tradition of serving local technical and scientific education. Perhaps this service was seen as a further development of 'Municipal Socialism' and the Town Council had a desire to obtain some say in the matters of the University.

In 1879 Lord Provost William Collins was elected a Councillor of the Glasgow Mechanics Institute/College of Science and Arts, a member of Allan Glen's School Management and also one of the Governing Body of the Glasgow and West of Scotland Technical College. Following in the steps of the Glasgow Town Council, the Lord Provost of Paisley was elected to the Board of Governors of Paisley Technical School in 1899.[11]

This was in contrast to the University of Edinburgh where the Town Council had been responsible for the founding of the original college 'and, being constantly on hand, exercised oversight and was ready to interfere in order to secure its own interests.'[12] The Rector's Assessor held office for a term of three years and all other Assessors held office for four years. The University Court became a body corporate with perpetual

succession and a common seal. All property belonging to the University at the passing of the 1889 Act was vested in that body. [13]

The Court was entrusted with the patronage of several of the professorships, appointing the additional examiners for degrees and was a Court of final appeal in any dispute which arose in making up the Register of the General Council. Seven Members of the Court constituted a quorum and the Rector was the President. In his absence the Principal took over the Presidency.[14] The Court was the centre of power within the University and met every month. Although the Rector was officially the President of the University Court, in his absence the Principal was designated to take the Chair. Throughout the war years the Rector was Raymond Poincare, the President of France. Obviously he could not be present in Glasgow during this time so, under the constitution of the University, in his absence the Chair of the Court was taken by the Principal.

President Poincare held the office of Rector until 1919. And with very few exceptions Sir Donald took the Chair throughout this period until he retired in 1929. Following his retirement Sir Donald was still active in the business of running the University. He became Chancellor in 1929 and in this capacity headed the University Council.

GENERAL COUNCIL

Consisted of:

- Chancellor
- Members of the University Court
- Professors
- All MAs of the University
- Doctors of Medicine
- D.Sc or B.Sc
- B.Div
- B.Law
- B.of Medicine
- Certain other University course attendees (not specified)

The General Council had as members University of Glasgow graduates and, after the 1914-1918 war, teachers. Submitted to this body were all proposed new Ordinances and important regulations. In turn, the General Council transmitted its views and observations on academic questions to the Court. The Council elected the Chancellor.

The Council met twice-yearly; on the last Wednesday in October and April, but the Chancellor had the right to convene special meetings. A quorum was ten for every one thousand members on the Register. All questions affecting the well-being of the University were considered by the Council. The Annual Report concerning statistics of student attendance and finances was made up by the University Court for the Secretary for Scotland, and these were laid before the General Council. All new or amended ordinances were also sent initially to the Council. The Chancellor and four of the Assessors in the University Court were elected by the Council.

The Chancellor was the President of the General Council. In his absence the Rector took the chair. In the case of both the Chancellor and the Rector not being available the order of seniority for the Presidency was Principal, Chancellor's Assessor then Rector's Assessor. In the absence of all these officials a Chairman was to be elected by the Meeting. Originating from the General Council were the three Standing Committees of Council; these were; Educational Policy and Methods; Business; and Finance and Statistics. They are discussed later in the text.

Previous to 1918 the General Councils of the Universities of Glasgow and Aberdeen jointly returned a representative to Parliament and the Vice Chancellor of Glasgow University was the Returning Officer. This arrangement was altered under the provisions of the Representation of the People Act, 1918.[15]

SENATUS ACADEMICUS

Consisted of the Principal and the whole of the professors and was entrusted with the regulation and superintendence of the teaching and discipline of the University. The Senatus appointed two-thirds of the members of any standing committee superintending libraries or museums.[16] For administrative purposes the Senate was divided into six Faculties: Arts, Science, Divinity, Law, Medicine, and Engineering. Each Faculty included representatives from amongst the lecturers and professors. These representatives were appointed by the Court. It was the Senate's responsibility to regulate educational and disciplinary matters, subject to appeal to the Court.

BOARDS OF STUDIES

These corresponded closely to the departments of study for graduation in Arts. Each Board consisted of the Principal, Dean of the Faculty of Arts, other members of the Senate and Lecturers and one member was appointed by the Senate to be Convener of the Board.[17] The Board of Studies reported to the Senate and the Court on details of current schemes of instruction. Such details could include timetabling and the number of hours to be allocated to a particular class.[18]

STUDENTS' REPRESENTATIVE COUNCIL

The constitution of the SRC was written by this body but approved by the University Court. The SRC had the right to petition the University Court on any matter except teaching or discipline. For these two areas of university life the Senatus Academicus had to be consulted. The SRC consisted of male and female representatives from the Faculties of the University with the aim of representing student interests. Secondly, it was the recognised means of communication between the students and University authorities and finally it had the remit to promote social and academic unity amongst students. Various sub-committees came within its remit. These were: Inter-universities; Magazine (University of Glasgow Magazine published weekly); Amusement; Lodging; Chapel; Book exchange.[19] The SRC was regulated by Ordinance 60 under the following provisions:

> After the University Court has approved of the constitution of a Students' Representative Council in any University, alterations in the said constitution shall be of no effect unless and until they shall receive the approval of the University Court.[20]

Presidents were elected annually and served from November to November. Appendix 2.7 lists the University of Glasgow SRC Presidents from session 1910-1911 to 1930-1931. The SRC was elected by the matriculated students of the University and made representation to either the Court or Senate, as appropriate, on matters affecting undergraduate interests. The SRC had a spokesman in the Court in the form of the Rector's Assessor.

DEAN OF FACULITIES

The duties as originally constituted were to exercise superintendence over student studies and judge the fitness of applicants for degrees. The Act of 1889 took away the right of the Dean to be a member of the University Court. The Dean was elected annually by the Senate.

STANDING COMMITTEES

As already defined, the Court if not the instigator was certainly the final arbiter of all University policies. Although the University Council set up standing committees these had to submit their minutes to the Court for approval. The three standing committees of Council were: Finance and Statistics; Business; and Educational Policy and Methods. They reported to the Council at the April and October statutory meetings. The three standing committees had been set up under Standing Order XVIII whilst Order XIX ordained that other standing committees could be appointed as the Council saw fit. Each committee had to be named with reference to the department of business it performed and be subject to the same regulations as applied to the Business Committee. The Convener of the Business Committee had always to be an ex-officio member of each committee. The Clerk of Council was not to be a member ex-officio but, if required by the Convener, should attend.[21]

The function of the Business Committee was for the general purpose of preparing the business for the meetings of Council and for any special purpose determined by the Council. The Committee was to consist of the Principal, four Assessors of Council in Court, the Convener of each of the other Standing Committees and nine elected members. The Clerk of Council was a member ex-officio.

One-third of the elected members retired annually in rotation at the October statutory meeting. They were then eligible for re-election. Vacancies through death or resignation were to be filled at the next statutory meeting. Except for these occurrences no changes could be made at the April meeting. When periodic or casual vacancies occurred the remaining members had the power to suggest candidates for appointment. The Council, however, still had the right to propose others.

Three members of the Business Committee constituted a quorum. The Council appointed the Convener but if a casual vacancy occurred members of the Committee appointed one from amongst their own members. Although the Committee met by statute biennially, the Convener could summon the Committee to meet at his discretion. In turn he was obliged to call a meeting within one week if requested to do so by a quorum of members. The Convener had a deliberative and casting vote.[22]

In 1914 it was moved by Mr. J B Douglas and seconded by Mr. D R Clark that changes be made to the constitution of the Business Committee. Prior to 1897 the committee had stood at nine elected members. In that year the four Assessors had been added to the membership. 1906 saw further additions. The Principal and the Conveners of the other standing committees were added making the total seventeen.[23] Clark and Douglas suggested that the three year tenure was too short and should be increased to five years whilst the elected membership should be increased to fifteen. To justify their motion they cited that when the nine-man membership was first mooted the membership of Council was under 1 000. In 1892, when the present Standing Order had been adopted the membership was 5 094. The membership in 1914 was stated to be 8 194 so the proposed enlargement was deemed to be justified.[24]

As further evidence as to why the membership should be enlarged it was stated that in the other three Scottish universities the Business Committees of the General Council were presently greater than the proposed Glasgow enlargement. The Business Committee of Aberdeen was quoted as being 29; St. Andrews 31 and Edinburgh 45. Following discussion it was agreed to enlarge the elected membership to 15 but the tenure was to stay at three years. The Committee was now 23 strong in total. One-fifth of the 15 elected members were to retire annually and were not to be eligible for re-election until after the lapse of one year. This one year lapse in tenure was not to apply to the retiring Convener of Committee.[25] It should be noted that it was 26 April 1916 before the first 23 man Committee reported to Council.[26]

INSTITUTIONAL PROCEEDINGS

The format of the General Council meetings remained the same throughout the period of this thesis, 1910-1930. For example at the first meeting of 1910 the business conducted included: approval of draft minutes of the October 1909 meeting; Reports by the three Standing Committees and the Recreation Ground Committee. The final item on the agenda was the reappointment of the Graduates University Extension Committee.[27]

The Recreation Ground Committee had been established at the October 1909 meeting when John Fergus noted that the University Court had acquired land at Anniesland for the formation of a University Recreation Ground. As a consequence, '...the Council should appoint a Recreation Ground Committee with a view to cooperating with the Court in raising the necessary funds and in any other way calculated to promote the successful completion of the undertaking.'[28] The committee appointed was 36 strong with power to add to their number. John Fergus was elected Convener.[29]

At this University Council meeting the Business Committee reported that it had written to the University Court asking to have the list of Members of Council inserted at the back of the Calendar as it had been 'up to four years ago.' Mr Alan Clapperton, Secretary to the Court replied that the Court agreed to bear the expense of inserting in the University Calendar a printed list of Members of the Council containing the name of the graduate, the qualifying degree and the year the degree was obtained.[30]

Through the medium of the MP returned by the Universities of Glasgow and Aberdeen, Sir Henry Craik, the Business Committee asked the Chancellor of the Exchequer what progress the Treasury Committee on Scottish Universities had made. On 28 February, 1910 the Chancellor of the Exchequer replied that the Report of the Committee was still under consideration, and though it was hoped 'to be able to propose an increase in the grant made to the Scottish Universities, I am unable to say at present what the increase will be or what conditions will be attached to it.'[31] The final concern of the Business Committee was a discussion of the Biennial Commemoration Day due to be held 9 June 1910. A sub-committee was appointed by the Court and consisted of the Principal, Secretary of the Court, Clerk of the Senate and Clerk of the Council.[32]

The Finance committee met each month and over the years 1910-1930 the format of the meetings remained the same. Following the opening of the meeting the expenses of a previous month were discussed and approved. For example, the meeting of 27 April 1910 discussed student fees; overpaid, underpaid and to be transferred to another session. Examiners fees were next on the agenda followed by the financial business of the time, including investments to be made. The Council had applied to the Court to have all Foundations, Loans and Investments merged.

At this meeting the Court decision was read. The Court said the merging was not possible as there were too many accounts and some were managed not by the University but by outside parties.[33] The Carnegie Trust income was also discussed where it affected the University.[34] Finally the committee turned its attention to the subject of statistics. It discussed matriculation, class enrolments and degrees. These were shown in detailed appendices.[35]

The Committee on Educational Policy and Methods discussed the appointment of Lecturers. It wanted Lecturers who taught at the University, using its facilities, but were employed by other establishments to be granted University status. The Committee approached the Court on this subject but the judgement was that Lecturers could only be appointed under the usual University rules.[36]

On 7 April 1909 the Council had written to the Court asking for a class of Lecturers similar to the *'Privat-Docenten'* in German universities. The Council requested that distinguished graduates who made application to the University Court to teach classes in the University qualifying for graduation should, when the University Court was satisfied of their ability and fitness, be appointed Lecturers in the University.[37] The Court refused the request in a letter dated 11 March 1910 and this refusal led to a conflict between the Council of the University and the Court.

The Council was not satisfied with the refusal and asked the Court for copies of Faculty Reports on the subject. The Court Secretary wrote back saying he was empowered only to give the decision of the Court and could not comply with the

request for Faculty Reports.[38] This refusal infuriated the Council which commented that by a majority of 7-3 the Court had refused while immediately thereafter it unanimously resolved to communicate them to the press. 'As no organ of the press has seen fit as yet to publish these reports, the Committee remain in ignorance of their contents.'[39]

Unhappy with what it considered unacceptable behaviour from the Court, the Council obtained legal advice from the Dean of the Faculty of Advocates, the Right Honourable Charles Scott Dickson, MP. The Opinion, dated 11 April 1910, was received from London. The important sentence read: 'I thoroughly recognise the importance of the Representation of the General Council, but I am of opinion that the reply of the University Court is well founded.'[40]

Mr. Dickson further commented that Ordinance 17 gave the Court power, after consulting with the Senate, to appoint lecturers in subjects not already taught in the University and, under certain conditions, in subjects already taught. Clarifying a legal point Dickson commented that the power of the Court to appoint lecturers may be considered as discretionary 'but the discretion as to whether the power is to be exercised or not is, in my opinion, entirely with the Court.[41] Having sought Opinion the Council accepted it without further argument. Following a brief report by the Recreation Ground Committee the meeting was adjourned until October 1910.

UNIVERSITY FINANCES

Tables 2.2 and 2.3 show only too well that the University had a deficit balance for each of the years up to session 1914-1915. The greatest deficit over this period was session 1911-1912 when it amounted to £3 350. The smallest deficit was £800 which was recorded in session 1912-1913.

In order to compete successfully in the new century the University of Glasgow would need first rate staff and equipment. And it was hoped that its Graduates would provide a large amount of this need. Other countries, (not listed) it was stated, had universities with annual incomes in excess of £500 000, whilst the Scottish universities had the interest from the £1 000 000 Carnegie Trust Fund to share four ways. This was stated

to be inadequate for the needs of Glasgow which required new buildings and equipment for medical, scientific and technical subjects. The University, it was claimed, must do more for itself if it 'is to hold that position among the Universities of the world to which her age, her history and her opportunities entitle her.'[42]

Early in the century a 16 man Extension Committee was formed and wrote to each graduate urging them to form societies in order to keep in contact with each other and their Alma Mater. The Committee ended the letter by stating that it welcomed suggestions from graduates who sympathised with the cause and were willing to support the movement for closer ties with their Alma Mater. They were asked to suggest ways of enlisting the interest of those able to give money to the University or who could help in other ways, 'towards the main end in view, the welfare of your University and ours.'[43]

In 1931 the Council was still appealing for the proposed Glasgow University Club and asked its graduates to fill in a form and answer three questions concerning the membership of the Club. (1) Should the membership be open to men and women? (2) Limited to men? (3) 'Or is this a matter of indifference to you?'[44]

By the 1930's women were at last being considered as potential members. Previously women had been discriminated against in the University. For example, in 1911 a motion was put to the General Council by The Rev. Robert Craig and seconded by Miss Janet Spens. The motion read: 'That in the opinion of this Council the word 'Professor' should be interpreted without distinction of sex so that any lady duly qualified may be a candidate for any Chair in the University.' The vote was taken and there were 9 votes for the motion and 11 against. The Chairman thereupon declared the motion lost and so the women of the University, in common with the rest of the female population of the UK, had to fight on until approaching the end of the First World War for any movement towards equality between the sexes.[45]

It was proposed that the Club be centrally located in the region of George Square, Glasgow and be fully equipped with all facilities, including bedrooms.[46] The initial response to the circular sent out at the end of 1931 was disappointing. It attracted a

total of 643 replies and of these replies, 132 were from women graduates. The minute stated that at least 250 more positive replies were needed before the project could proceed.[47]

The Extension Committee commented that a weakness of Scottish universities was that they were non-residential. This meant that students were often not known to each other and also made it difficult for them to feel bonded to a university that meant little outside the classroom. To overcome this the Committee decided that Halls of Residence would help to unite students by making them realise that the University was not simply a place where there were classrooms and teachers and nothing else.[48]

This reticence on the part of students to live in halls proved very difficult to overcome. Even when Halls of Residence were provided they were not to be used by many students. This was probably because the Committee was trying to overcome a tradition whereby many Scottish undergraduates considered the universities to be a form of extra-mural teaching rather than a total way of life.[49]

In session 1919-1920, only 2.6 percent of Glasgow's total student population were in Halls. (See Table 3.8) In session 1924-1925, three percent of its males and 5.6 percent of its women were in Halls. (See Table 3.9) In session 1930-31 Aberdeen had no students in College Hostels; Edinburgh had eight percent of its men and 26 percent women; Glasgow three percent and five percent; TRTCG one percent and nil percent; St.Andrews and Dundee 12 percent and 42 percent.

The overall Scottish figures were four percent for men and 14 percent for women. The British average, which would, of course, include the Scottish statistics were; 21 percent men and 37 percent women in University Colleges and Hostels. It is interesting to note the comparatively high percentage of women in University Hostels. This indicates the close supervision operating in these establishments which would doubtless placate parents and guardians.[50]

At the April 1902 General Council meeting Professor Walter Raleigh, head of the school of English in the University, made an address and his remarks are quite

enlightening. He expressed his views, and possibly the views of many other staff members, on what the University should be teaching and the importance to be placed on the various faculties. He commented that wherever a great university was found you would 'find the Arts and the Sciences in a flourishing condition, with the technical and applied Sciences grouped around them in decent subordination.'[51]

He professed that the University of Glasgow should stay firmly entrenched in the teaching of the Arts and Pure Sciences and let others teach the sciences and technicalities attached to industry. And yet, when he commented that the 'supremacy of remunerative studies is not of old standing; and a University degree, in times past, has not been regarded as opening a certain way to wealth,' he appeared to accept that a fairly recent innovation in the world of the teaching establishments was that a degree in the applied sciences was a path to economic security for the holder.[52]

So the new degrees in such disciplines as Engineering, Applied Chemistry and others, were now seen as a way to make a substantial amount of money if not in Scotland then in England or some foreign country. Professor Raleigh was so out of step with the prevailing pro-science sentiment that he must have been trying to make a case for his own department in the face of obvious mounting pressure from the applied sciences.

As indicated by the letter from the Extension Committee appealing to its graduate body for funds, adequate financing of the University was of prime importance. Sufficient money meant the best of equipment and teaching staff, leading to an enhanced academic reputation for staff and University and, as a result, more students would be attracted to the University. Up to the First World War there had been a record of deficit in the University finances. The average of five years ending 1909 had shown revenue of £71 594 and expenditure of £72 326, giving an average annual deficit of £732.[53]

Revenue and expenditure details for the financial years 1910-11 to 1914-15 are shown in Tables 2.2 and 2.3. From session 1913-14 to the end of the period under review there was a slight change in format in presenting the information, hence the two Tables.

TABLE 2.2. UNIVERSITY OF GLASGOW. REVENUE AND EXPENDITURE FOR THE YEARS 1910-1911 TO 1912-1913

	Average of five years ending 1909	1910-1911	1911-1912	1912-1913
Revenue £				
Dividends, Taxes and Interest, 'etc'	15 271	18 965	18 678	19 260
Parliamentary Grant	20 880	27 130	30 255	35 590
Class Fees	26 674	31 709	32 895	34 235
Matriculation and other fees	8 769	9 748	10 075	10 317
Total Revenue	71 594	87 552	91 903	99 402
Deficit	732	1 801	3 350	800
Grand Totals	72 326	89 353	95 253	100 202
Expenditure £				
Administration	4 481	5 780	5 605	5 452
Salaries & Pensions	48 807	55 161	59 852	61 537
Maintenance of buildings and services 'etc'	10 887	16 231	18 208	19 978
Class expenses 'etc'	4 612	5 802	6 149	6 368
Library, Museums 'etc'	2 673	4 814	5 439	6 867
Suspense Account	512	1 565	nil	nil
Total Expenditure	71 972	89 353	95 253	100 202
Surplus	354	nil	nil	nil
Grand Totals	72 326	89 353	95 253	100 202

Source: UG General Council Meeting 29 April 1914 p.52. Ref. DC183/3/3

TABLE 2.3. UNIVERSITY OF GLASGOW. REVENUE AND EXPENDITURE FOR THE YEARS 1913-1914 TO 1914-1915

Revenue £	**1913-14**	**1914-15**
Endowments, Dividends, Interest and private source grants	19 464	20 497
Grants from Education taxation account	8 700	not stated
Parliamentary and Treasury Grants	24 680	33 380
Class Fees	36 528	30 675
Matriculation, Examination, Graduation and other fees	10 462	9 658
Total	99 834	94 210
Expenditure £		
Administration	5 768	5 765
Salaries and Pensions	62 368	61 533
Maintenance of buildings and services, 'etc'	16 069	14 294
Class expenses	6 384	5 772
Library, Museum and Observatory expenses	7 554	8 817
Other expenditure	1 081	not stated
Parliamentary expenses	3 583	not stated
Total	102 807	96 181
Revenue	99 834	94 210
Surplus	nil	nil
Deficit	2 973	1 971

Source: UG General Council Meetings for Sessions shown. Ref. DC 183/3/3

As Tables 2.2 and 2.3 indicate, the two major sources of income were class fees and Parliamentary grants. Together these grants averaged 65 percent of the total income over the period to the end of session 1914-1915. On the debit side the biggest expenditure was salaries and pensions, followed by building maintenance. Up to the end of session 1914-1915 salaries and pensions accounted for about 63 percent of the total expenditure. Maintenance of buildings and services ate up over 15 percent of the budget, giving a total of approximately 78 percent for these two areas of expenditure.[54]

The Parliamentary and Treasury grants were not itemised in the Revenue and Expenditure Accounts. However, the University Grants Committee Returns show that in sessions 1913-1914 and 1914-1915 the University received £24 680 from this source. It appears that in 1913-1914 the only Parliamentary and Treasury grants were from the University Grants Committee.[55] Tables 2.4 and 2.5 give a further break-down of the sources of income and expenditure.

TABLE 2.4. UNIVERSITY OF GLASGOW. STATEMENT OF FEES RECEIVED IN EACH FACULTY 1910-1911 TO 1914-1915

			MALES		
Faculty	**1910-11**	**1911-12**	**1912-13**	**1913-14**	**1914-15**
Arts	7 264	7 294	8 034	7 700	6 231
Science	7 671	6 801	6 588	7 051	4 052
Medicine	8 964	10 503	11 002	12 082	10 895
Law	900	990	1 096	1 131	600
Total	24 799	25 588	26 720	27 964	21 778
Less fees repaid	nil	nil	42	56	275
Fee fund	24 799	25 588	26 678	27 908	21 503
Clinical fee fund	not stated	not stated	234	400	450
Non-qualifying classes	445	267	294	172	188
Divinity	not stated	not stated	375	413	424
Total for males	25 244	25 855	27 581	28 893	22 565
			FEMALES		
Faculty	**1910-11**	**1911-12**	**1912-13**	**1913-14**	**1914-15**
Arts	4 640	4 634	4 639	4 814	4 334
Science	473	561	643	698	883
Medicine	1 260	1 564	1 625	1 892	2 657
Law	8	15	11	nil	nil
Total	6 381	6 774	6 918	7 404	7 874
Less fees repaid	nil	nil	7	nil	6
Fee fund	6 381	6 774	6 911	7 404	7 868
Clinical fee fund	not stated	not stated	105	184	220
Non-qualifying classes	54	31	42	48	22
Total for females	6 435	6 805	7 058	7 636	8 110
Total males and females	31 679	32 660	34 639	36 529	30 675

Source: General Council Meetings for sessions shown. Ref. DC 183/3/3

Note: All amounts in £ Sterling and rounded to nearest £.

Considering the male student population, Table 2.4 shows that the Faculty of Medicine received the largest amount of fees. These fees averaged 41 percent of the male total taken over the period 1910-1911 to 1914-1915 and 38 percent for the combined male and female totals. And yet it was not until session 1914-1915 that the male student population in the faculty of Medicine exceeded that of the Faculty of Arts.[56] This reflects the higher fees paid by medical students. Female enrolment was always overwhelmingly greatest in the Faculty of Arts and the fees received by this Faculty matched this superiority of numbers.

TABLE 2.5. UNIVERSITY OF GLASGOW. TEACHING STAFF AND EXAMINERS' SALARIES 1910-1911 TO 1914-1915

Recipients	1910-11	11-12	12-13	13-14	14-15
Principal & Professors	26 571	28 689	29 639	29 877	35 290*
Lecturers	8 995	15 912	16 049	17 803 }	
Assistants	11 565	7 325	7 499	7 188 }	27 231
Examiners	2 782	2 684	3 117	2 996 }	
Total	49 913	54 610	56 304	57 864	62 521

Source: GC Meetings for sessions shown. Ref. DC 183/3/3
All amounts in £ Sterling and rounded to nearest £
Note: * 1914-1915, sum for Principal and Professors includes £5 493 paid to eight retired Professors. Only combined sum available for Lecturers, Assistants and Examiners for session 1914-1915.

It was session 1917-1918 before the salaries of the Principal and Professors were differentiated. In that session the salary of the Principal was shown to be £2 000 per annum.

In 1903 the University shared in income from the Carnegie Trust to be used for capital expenditure on equipment for various faculties. The Carnegie Trust was created in 1901 by Andrew Carnegie, resident of New York, but originally from Skibo in Sutherland. The Trust was funded by $10 000 000 Bonds by the United States Steel Corporation, bearing interest at five percent. Half of the nett income was for the improvement and expansion of Faculties of Science and Medicine in Scottish universities and also for improving and extending the opportunities for scientific study and research. Funds were also to be made available for increasing facilities for studying History, Economics, English Literature and Modern Languages and such other subjects relevant to a technical or commercial education that could be taught within a university. The erection and maintenance of buildings, laboratories, classrooms, libraries and the books, apparatus and equipment to stock them were also to be provided from the Trust. Professorships, Lectureships, Research Grants, Fellowships and Scholarships were also to be provided for by appropriate endowments.[57] The yearly average paid to the University from the Trust for the period 1903-1908 was £6 388, for 1908-1913, £8 762 and 1913-1918, £8 200.[58]

The other half of the nett income from the Trust was for the payment of university class fees for students of Scottish birth or extraction aged 16 years and upwards, or scholars who had given two years attendance after the age of 14 years at a Scottish school or institution. The Trust also paid course fees for selected students. Normally a student had to be born in Scotland or be of direct Scottish descent. Approximately one-half of the matriculated students of the four Scottish universities paid their own fees; the tuition fees of the other half were paid by the Carnegie Trust.[59] As indicated by Table 2.6, the University of Glasgow approximated to this norm.

TABLE 2.6. UNIVERSITY OF GLASGOW. BENEFICIARIES OF STUDENT GRANTS FROM THE CARNEGIE TRUST, 1910-1911

	Beneficiaries			£ Class fees			Average fee per
Faculty	**Men**	**Women**	**Total**	**Men**	**Women**	**Total**	**Beneficiary**
Arts	517	361	878	5 302	3 241	8 543	10
Science	180	20	200	3 017	334	3 351	17
Medicine	264	22	286	4 790	413	5 204	18
Law	19	nil	19	135	nil	135	7
Divinity	105	nil	105	685	nil	685	7
Totals	1 085	403	1 488	13 929	3 987	17 918	12

Source: GC Meetings 25 October 1911 App. IX p.58. Ref. DC 183/3/3
Note. All amounts in £ Sterling and rounded to nearest £

Table 2.6 shows that during session 1910-1911 a total of 1 488 students had their fees paid by the Carnegie Trust. This total was made up of 1 085 men and 403 women. Table 3.1 shows that 2 108 males and 682 females were matriculated students in the University during this academic year. By calculation this indicates that 52 percent of all male students were Carnegie Trust beneficiaries. For women the total was 59 percent.[60] The total male and female student numbers given include those from outwith Scotland, many of whom would not have been eligible for a Carnegie Trust Grant. Consequently, the percentage of eligible students receiving Carnegie grants would have been higher than stated.

Table 2.6 also demonstrates that of the beneficiaries, 878 out of the total of 1 488, were in the Department of Arts (59 percent). At this time an MA degree took three years to complete. The minimum cost to a student for completion of the course was £38-16-0d (£38.80p). This was made up as follows: seven courses at £4-4-0d each totalled £29-8-0d (£29.40p); Matriculation, £3-3-0d (£3.15p); Examination, £5-5-0d (£5.25p); Registration, £1-0-0d; The total amount of all these modules was £38-16-0d (£38.80p). Carnegie beneficiaries received the £29-8-0d but had to pay the remaining £9-8-0d (£9.40).[61]

It is obvious that the cost to the Trust was considerable. However, the payment of these fees also benefited the University as it undoubtedly maintained student numbers by giving financial aid to those who otherwise may not have been able to receive a tertiary education. But, James Coutts highlighted what he perceived to be a disadvantage to some students and their parents following the institution of Carnegie grants. He commented that since the institution of the Trust there had been a general raising of class fees, which had been borne by those people who had to pay their own fees. Coutts was also unhappy because many students who had their fees paid had parents who could easily afford to pay. The parents, Coutts claimed, and not the students were responsible for these actions.[62]

There was a long history of the University asking the Treasury for grants. At the start of the period under consideration the universities of Scotland were awaiting the result of their latest search for additional money from the Government of the day. In April and May 1909 the four Scottish universities had Memorialised the Treasury Committee asking for an increase in the Parliamentary Grant. Minutes of evidence had been given before the Committee and a Report based upon the Memorial and the minutes of evidence had been published by the Treasury Committee in the form of two Parliamentary Papers.[63] The Committee admitted the accuracy of the Memorial and recommended an additional £40 000 to be shared by the four Scottish universities.

The Treasury identified two categories of pressing needs within the universities. These were needs due to expenditure which had accrued, and needs due to expenditure necessary for future use. With regards to Glasgow, claims under the former were the

result of recent extensions to the University. £190 000 had been spent in the past few years erecting new buildings such as the Bute Hall and Randolph Hall, both 1882. Once these buildings had been erected they required expenditure for lighting, heating, cleaning, insurance and general maintenance. In 1889 these costs had been £4 000 and in 1909 they were in excess of £9 000.[64]

The University of Glasgow stated that it needed the Treasury grant in order to purchase special equipment for laboratories and workshops. The money was also required to improve teaching methods to enable all students to be helped and encouraged to make good use of their educational opportunities. In reply, the Treasury Committee reported that it believed £40 000 was a reasonable amount to cater for the more pressing needs of the universities at this time. Out of this sum the Universities of Glasgow and Edinburgh would each receive £12 500 whilst Aberdeen's share would be £9 000. The University of St. Andrews was allocated £6 000 but from this sum the University had to give £1 500 to Dundee Medical School. Each University Court had to submit annually to the Treasury a report showing where the money was spent. Additionally, the Treasury reserved the right to instigate an independent enquiry every five years into the financial affairs of each institution.[65]

The University of Glasgow Court stated that the lecture system under which the Professors worked meant that they had little control or direction or even knowledge of their students and must be supported by more intimate association and tutorial instruction. The Court suggested that 22 tutorial instructors should be appointed to take classes of about 20 students twice a week. These new personnel were to be classified as Specialist Tutors of higher status than those presently employed as a University Assistant. The Court suggested that their salaries should be in the range of £300 to £400 per annum. In effect they were to hold what might be termed Junior Professorships.[66]

The Treasury Committee criticised this proposal stating that the University would create important posts without limit of tenure. This would lead to the University finding itself encumbered with a large staff, likely to decrease in efficiency and unlikely to seek or find promotion elsewhere.[67] The General Council believed that it was the

refusal of the Treasury Committee to receive representatives from them that resulted in misunderstanding on the part of the Treasury Committee as to the views and intentions of the Council in regard to the employment of distinguished graduates as lecturers.[68]

On the subject of Junior Professors the Business Committee objected to the statement given by Professor William Stewart of the University before the Treasury Grants Committee. In his statement the Professor stated that the Junior Professors were needed due to the advent of a new type of student at Glasgow; 'the Provincial Committee student'. The chief aim of this type of student, the Professor claimed, was to acquire a qualification to enable them to become primary school teachers. He stated that a large proportion of Arts students fell into this category.

These students had five lectures per week on each subject they were studying. The students spent all their time taking notes, often in shorthand, then spent most of their non-lecture time transcribing the notes into longhand. This gave them no time for anything else, making them totally dependent upon the Professors' notes, with no independent thought or reading. Professor Stewart claimed this habit might spread to other students and reduce the University to little more than a high school.[69]

COMPOSITE / INCLUSIVE FEE

In 1910 the Scottish universities were discussing the adoption of an inclusive or composite fee for their degree courses. The fee would vary depending upon which degree was undertaken. At this time, as in previous years, students paid for each class separately whereas an inclusive fee would cover a complete curriculum. The Treasury Committee Report urged caution and suggested a fee that was 'absolutely inclusive' and fixed under an ordinance. The Committee suggested fees could be in the region of 12 guineas for Arts (£12.60p); 17 guineas, Science (£17.85p); 22 guineas, Medicine (£23.10p); 7 guineas, Law (£7.35p) and 9 guineas, Divinity (£9.45p).[70]

When the Treasury Committee reported in July 1910 it intimated to the Scottish universities that it was prepared to sanction the additional £40 000 grant on the condition that an inclusive fee would be adopted in the four Scottish universities and that this fee would be uniform throughout. By the end of 1910 the universities had

fulfilled the conditions in all faculties except Medicine. Alone of the four universities, St. Andrews had adopted an inclusive fee in the Faculty of Medicine. It was the condition of uniformity which constituted the principal objection amongst the universities. If a university wanted to increase its fees it would have to persuade the others to raise its fees also.[71]

The matter was still being discussed in 1911 when the Business Committee reported that 'It has been represented that only on the institution of this inclusive fee will the Treasury pay the new parliamentary grant.'[72] It continued by commenting that in the interest of students and the people of Scotland the institution and fixing of the inclusive fee had to be carefully watched. It was pointed out that before 1872 teachers of each subject in national schools were paid by the fees of the pupil who chose to attend the individual teacher's class. The General Council was reassured that the establishment of the inclusive fee in the University need not interfere with the liberty of the student to make up his necessary curriculum by taking separate classes. Moreover, the inclusive fee should be lower than the fees paid for separate classes.[73]

But all did not go well with the discussions between the Scottish universities concerning the inclusive fee. Five members from each of the Universities of Aberdeen, Glasgow and St. Andrews met 20 June 1912 at the Station Hotel in Perth to discuss the matter. Representing Glasgow was the Principal, Sir Donald MacAlister, Dr. David Murray and the Reverend John Smith. Also present from each university was the Dean of the Faculty of Medicine and the University Secretary. Edinburgh had been invited but declined as it did not want to enter into discussions on the inclusive fee in Medicine and the Applied Sciences.[74]

Eventually the Scheme of Inclusive Fees became applicable to candidates for degrees in Arts, Pure Science or Law who matriculated for the first time on and after 1 October 1912 and to candidates for degrees in Engineering Science who matriculated for the first time on and after 1 October 1913 and to candidates for degrees in Applied Chemistry who matriculated for the first time on and after 1 October 1915.[75] Even by 1930 the Scheme was not, however, applicable to candidates for degrees in Medicine or for the degree of B.Sc. in Agriculture.[76]

PRELIMINARY ENTRANCE QUALIFICATIONS

Recently increased demands on preliminary entrance qualifications had raised the average age of students entering University.[77] The fear was expressed that this could extend the time spent in University and thus delay by a greater margin the start of a student earning his own living. The Arts Ordinance then in force was based on attendance during three sessions on seven courses in at least five subjects with the three session course length 'modelled on that of the older English Universities.'[78] These 'older English Universities' were certainly the Universities of Oxford and Cambridge. It was thought undesirable that the Arts course should be extended as it was considered to be long enough for a man entering a profession or business career as this would require an additional three or more years of professional studies.[79]

On 26 April 1911 the Business Committee and the committee on Educational Policy and Methods presented a Joint Report to the General Council on Preliminary Examinations. The representatives of the four Scottish University Councils met 21 January 1911 in Perth. Seventeen representatives were present, including six from the University of Glasgow. The Reverend John Smith from the University was elected Chairman.[80] The Meeting agreed to the establishment of common examinations in Arts, Science and Medicine.[81]

Concerning the control of the Preliminary Examinations it was agreed that the scheme submitted by the General Council of the University of Glasgow should form the basis for discussion. This scheme was stated to be very similar to the General Council of Aberdeen but different in important detail to Edinburgh's. These differences were not itemised.[82]

It was, however, agreed that the present Joint Board should disband and The Universities Entrance Board should be constituted. This Board was to consist of 12 members. From each of the four universities should be elected three members; one from the Court, one from the Senate and one from the General Council. The Board members were to hold office for five years. The central location of Perth was decided upon as the meeting place and the Board was to employ a permanent secretary.[83]

FACULTY OF COMMERCE

The Committee on Educational Policy and Methods reported to the Council on the meeting of a Joint Committee composed of the University's three Standing Committees. The Joint Committee had met in October 1910 to discuss the establishment of a Faculty of Commerce within the University. Not wanting to be thought laggard in a branch of higher education in which it believed it could be influential, the University aroused its dormant interest in commercial education with the formation of the Joint Committee in 1910. At the Joint Committee meeting consideration was given to the question as to whether it was advisable that the University of Glasgow should make arrangements 'with a view to directing in a somewhat specific way the training of those who were to play important parts in commercial life, and whether, therefore, it was advisable that a Faculty of Commerce should be instituted.'[84] The comment was made that this topic had already been before the Council several times in the last 'few years'. The General Council had been interested in this matter since April 1901. In this year it had been recommended that the MA degree should include History, Economics, Mercantile Law, Language, Literature, Ethics and Science.[85]

In April 1905 the matter of a Faculty of Commerce again came before the General Council. Reports from the Universities of Birmingham and Manchester, the London School of Economics, the Glasgow Athenaeum Commercial College 'and other important institutions' which had been endeavouring to promote the cause of higher commercial education were discussed. Observing the work of these institutions the Council commented that the University of Glasgow should also be able to exercise directly some guidance on the training of 'men of affairs.' To this end a Faculty of Commerce was thought desirable. The reason for the interest was the increased activity in places of higher education such as the Universities of Birmingham, Leeds, Sheffield, Manchester and Liverpool. In 1910 the Director of the School of Commerce, University of Liverpool, James Montgomery, visited Glasgow to present a paper before The Royal Philosophical Society of Glasgow on the topic of Education and Commerce.[86]

The main tenet of his paper was the superiority of American and German commercial education compared with that in Britain. Although office training alone may make a first-rate clerk, this person was not capable of adapting to changing commercial practices. In comparison, he claimed, the superior training of American and German youths made them adaptable, to their own advantage and that of the community in which they lived. In Britain, meanwhile, according to Montgomery, more British clerks remained clerks all their lives than did those of any other nation, and the consequence was that, even in Britain itself, an undue proportion of British trade fell into the hands of foreigners.[87]

After their commercial education, which included a large proportion of practical training, the foreign clerk often travelled abroad to inquire, note, compare 'and to return to their native hive laden with the honey they have sucked on far-off fields' and as a consequence, 'the foreign clerk becomes the foreign principal in our midst. He is hated because he is dangerous.'[88]

Montgomery then touched upon the cost to students, parents and the country to commercially educate their youth. It was considered money well-spent when one recognised the good they did to their own trade at the expense of other countries.

> These are the men who, in Germany and America, form the scouts and advance guards of commerce, who build up an alert and enlightened mercantile public, ready to adopt new methods and make new departures, and alive to all the increasing exigencies of our times.[89]

It was to be three years before there was a response to Montgomery's paper in the *Proceedings* of The Royal Philosophical Society of Glasgow.[90] In November 1913 Mr. J H Jones, Lecturer in Social Economics at the University of Glasgow, read a paper and commented upon the paper read 'in previous years by Mr. Montgomery.' Jones decided that the English schemes operating in Liverpool, Manchester, Birmingham and Leeds Universities, where separate schools of 'social' and 'commercial' education had been established, were not suitable for Glasgow.[91]

In particular he criticised the provision of practical courses, the creation of separate faculties and schools of commerce and social study which led to the separation of these two areas of study. Jones expressed the belief that the function of a university was to train perception and imagination by providing a liberal education which 'trains the intelligence, gives elasticity to the faculties of the mind, humanises the character, and forms not merely an expert, but an efficient man.'[92] These arguments concerning which type of education should be provided on any Bachelor of Commerce degree were to continue throughout the years, with the liberal education proponents eventually winning the argument.[93]

Another influencing factor in the arousal of interest in commercial education was the announcement that commercial circles in Belfast had welcomed with 'lively satisfaction' the institution of a Faculty of Commerce in Queen's University, Belfast.[94] A six-man sub-committee was formed with a remit to confer with the Directors of the Glasgow Athenaeum Commercial College. If possible they were to report to the Joint Committee in April 1911 who would then present their finding before the General Council. The six-man sub-committee was named as Dr. John G Kerr (Convener), Sir David M'Vail, The Rev. Dr. John Smith, Messrs. John Mann jr., David R Clark and James Glen.[95]

As planned, armed with Reports from other universities, the sub-committee met with the Directors of the Glasgow Athenaeum Commercial College 14 February 1911. John Mann had the dilemma of not only being on the sub-committee but also being the Director of the Athenaeum Commercial College. Obviously he wanted to see commercial education advanced to the highest possible level but he did not want the Commercial College to suffer in any way.

At this time Mann jr. was still grieving the death of his father, John Mann, who had died 12 December 1910 aged 83 years.[96] The two John Mann's were partners in the firm of Glasgow accountants John Mann & Son. The father had taken control of the company in 1850 and his eldest son, John jr., joined him as a partner in 1886.[97] Upon the death of his father it was written:

> His sons follow in his footsteps in filling honourable and honoured positions in the city; and it is some consolation to the Royal Philosophical Society to realise that his place as honorary treasurer is being admirably occupied by his eldest son, Mr. John Mann, Junr.[98]

There were three main areas of discussion. In the first place it was mooted that the University should institute a degree in Commerce on the lines of the B.Sc. Engineering degree. It was proposed that the degree should be of three or four years duration. Eventually, certain classes in the Athenaeum could be recognised for the purpose of that degree. Secondly, it was recommended that in the meantime a specialised MA degree including Economics, Mercantile Law, Commercial Geography and History, Natural Philosophy, Mathematics and Modern Languages be instituted. It can be seen that this format closely followed and expanded the scheme first discussed in 1901. An MA Honours degree in Economics and Accounting was also mooted.

Finally, Glasgow University was not to provide any practical preparation for commerce or industry but general culture for the upper posts of commerce. No further narrowing of the Arts degree was to take place. Also discussed were the steps the University might take 'with the object of enlisting the sympathetic consideration and cooperation of business men in the education of those among whom the future leaders in Commerce might be found.'[99]

The conclusion arrived at after discussion was that whilst in the near future Athenaeum classes would become essential in the curriculum, the University must be involved in the organisation and provision of higher commercial education in Glasgow. It was obvious to the meeting that without the sympathetic support of local businessmen progress in the provision of higher commercial education would be slow. Agreement was therefore reached to ask the Council to approach the Court asking it to form an Advisory Committee consisting of representatives from the University, Athenaeum, Merchant's House, Trades' House, Chamber of Commerce and the Institutes of Chartered Accountants and Bankers.[100]

The remit of this Advisory Committee would be to make recommendations concerning lines of study upon which youths who had completed the Secondary Education Curriculum should proceed with a view to a high training for commerce or for commercial teaching work. The kind and extent of practical experience that might be acquired during their months not spent at University was also discussed. Finally, the type of new classes for which provision should be made, or the modifications that could be made in existing classes, and the availability of the Commercial College classes and courses suitable for University purposes were considered.[101]

The meeting asked John Mann jr., Director of the Athenaeum, to prepare a statement of the work carried out by that institution, his views as to the direction which it was likely to develop and an indication of possible future relations with the University.[102] Mann prepared a seven page statement, dated 2 March 1911 and read to the General Council at the April 1911 Meeting. Initially Mann commented on the inferiority of British commercial education compared with that in France, Belgium, Germany and the United States of America '...where large sums of money are being devoted to its extension both by Government and by merchant princes and other benefactors.'[103] Mann continued by stating that the University wanted to foster its relations with prominent businessmen and interest them in its work. He was uncertain whether this would be best achieved by funding a Faculty of Commerce or by assisting the Commercial College and encouraging it with the ultimate goal of 'recognition'.

At this time the Athenaeum was over sixty years old and a Central Institution made responsible by the Scotch (later Scottish) Education Department for the development and organisation of commercial education in the west of Scotland 'just as the other Central Institutions (Technical College, School of Art,) deal with their special subjects.'[104]

The roots of The Glasgow Athenaeum may be traced to 1845 when in November of that year a number of gentlemen of varied interests met in Glasgow and suggested the founding of an Educational Institution where 'in all the studies pursued it is expected of the members to hold and maintain the dignified position of moral reformers....'[105] Three reasons were given for wanting to start the Association. In the first place it was

thought that there was a lack of educational facilities in Glasgow. The second reason given was to provide education for the ever-increasing numbers employed in the lower echelons of the commercial world and the third reason was to provide a library.

The promoters stated that they wanted to establish an institute which would bring education '...within reach of the multitudes around us.'[106] For a proposed annual fee of one guinea (£1.05p) it was hoped to provide a library, newsroom and a reading room. Public lectures on science, literature and art were to be given and classes would be held at hours '...not to interfere with business.'[107]

The new Association was launched on 3 December 1845 as the Glasgow Commercial College. The first President was Robert Reid and Moses Provan was elected Treasurer. Classes commenced in rooms in Anderson's University in February 1846. At this meeting 108 students assembled at 0700 hours for a class in Logic. The first session ended in May 1846 and the second session started with 120 students attending classes in Logic and Political Economy. In a speech, Moses Provan outlined the future of the College. It was, he stated, to be modelled on the Manchester Athenaeum but of a more educational nature than the English establishment.

Provan stated that there was a real need for the College as it was educationally half-way between the Glasgow Mechanics' Institution and the University of Glasgow, where there existed '...a great educational vacuum.' This educational vacuum was not to be filled immediately as it was found that classes were too early for the Commercial College to prosper. One man even claimed that the Commercial college died from the results of early rising. [108]

Plans were formulated to establish another institution with the additional facilities of coffee room, gymnasium and baths and to hold concerts and popular specialist lectures and '...other means of relaxation.'[109] To this end a sub-committee was formed and met 21 January 1847 intending: 'To consider the propriety of endeavouring to form a Literary and Scientific Institution adapted to the wants of the commercial classes of Glasgow [and to] take steps towards the formation of an Institution.'[110]

This Committee adopted a seven-point plan in its attempts to find a successful way of establishing a viable institution to reach those members of the commercial classes it felt could benefit mostly from it. The first step decided upon was to form classes for the systematic study of the more important departments of knowledge, including modern languages, and other subjects which it was thought had a direct bearing on business.[111] The remaining six points related to Popular Lectures, library, baths and other recreational facilities.

Attempts to raise money to buy premises were unsuccessful and it was decided to rent. After public meetings in June 1847, Trustees and Directors were elected who decided to rent the Assembly Rooms in Ingram Street, Glasgow.[112] These premises were opened to members 13 October 1847 with a roll of 1 612. Charles Dickens was the guest of honour at the opening soiree held 28 December 1847. By this time the membership had risen to 1 909 and in April 1848 it was 2 133.[113]

The name of the institution was The Glasgow Athenaeum and functioned by offering both popular lectures and educational courses to the public of Glasgow and surrounding district. On the front of each Annual Report was written the following:

> THE OBJECT OF THE INSTITUTION
> Is to place within the reach of the public the fullest and most recent information on all subjects of general interest, whether COMMERCIAL, LITERARY or SCIENTIFIC: to provide an agreeable place of resort in the intervals of business; to incite, especially among Young Men, a task of Intellectual and Elevating Pursuits, and to secure the means of its gratification, by affording the utmost facilities for systematic study in various branches of Useful Knowledge.[114]

In order to strengthen and formalise the educational side of its activities the Athenaeum became in 1853 a founder member of the Union of Literary Institutions formed by the Society of Arts, London. The aim of the Union was to establish '...a scheme of annual examination with the view of infusing more life into the work of these associations.'[115] Society of Arts examinations were held in all subjects at the end of each session.

The stated aim of The Athenaeum was to make the curriculum suitable for young men in, or about to embark on, a commercial career. To this end, the first classes were English Grammar and Literature, Logic, French and German. In the second session Mathematics, Elocution, Italian and Vocal Music were added to the curriculum.[116] Latin, Greek and Spanish were the next subjects to be included. With regards to the educational work carried out by the Athenaeum, it was written:

> In no sphere has the Athenaeum done more useful work, or has conferred more lasting benefit upon the city, than in its educational departments; in none probably has it achieved greater success or has it deserved more recognition at the hands of the public.[117]

In the 1840's the public lecture was one of the main forms of general and intellectual enjoyment and was looked upon as important for the advancement of 'mental culture'. As such the lectures played a major part in the activities of the Glasgow Athenaeum. The first three lectures to be given in the inaugural month of the Athenaeum, October 1847, were entitled 'Recent Discoveries in Astronomy.'[118]

Over the years many eminent men lectured on various topics. These included Ralph Waldo Emerson who, in February 1848 lectured on 'The Characteristics of the Six New England States' and 'The Genius of the Present Age.'[119] In November 1856 William Makepeace Thackeray gave four lectures on 'The Four Georges' and in 1870 Anthony Trollope lectured on 'Prose Fiction as a Rational Amusement.'[120]

During the first and second sessions of the Athenaeum the number of students in attendance was about 400. Shortly afterwards the number declined and from 1850 to 1867 it barely reached 200, only occasionally exceeding 300. From 1867 onwards the number of students increased steadily.[121]

Two of the biggest problems with the provision of commercial education in twentieth century Glasgow and district was thought to be the shortage of text books and qualified teachers of the subject. A lecturer usually had to draw upon his own experiences in the commercial world instead of being able to teach from a text book.

At the University General Council meeting of April 1911 it was reported that '...higher Commercial Education is different from Technical Education such as that given at the Technical College, where there are of course huge libraries and much organised experience on every subject taught.'[122] The future was, however, looking more promising than it had ever been. The employment of university graduates by the large commercial houses at reasonable salaries was increasing and being encouraged both by university authorities 'and by their friends in the city.'[123]

Because of the difficulty of finding teachers of commerce Mann did not recommend the institution of a Bachelor or Master of Commerce in the University as the Athenaeum had a Faculty of Commerce in all but name. He did, however, recommend the teaching of a number of subjects selected from English, French, German, Italian, Mathematics, Chemistry, Natural Philosophy, Philosophy, Economics (with Political Philosophy, Economics and Economic History), Political and Commercial Geography and, finally, History. An MA degree including the requisite number of subjects selected from the list given would, he claimed, be acceptable to commercial men.

And yet he urged caution. He asserted that the ordinary businessman had a deep-rooted feeling against commercial education or knowledge which was not acquired in the business arena. They were disposed to look upon university graduates as academic theorists who were unwilling or unable to apply the mind to details. Giving advice, Mann stated that the University of Glasgow should do all in its power to overcome this feeling. With great understanding he said that the problem of commercial education was as much the education of the employers as the education of the employees.[124]

Continuing, Mr. Mann considered the possibility of an Arts graduate of the University taking additional classes in order to qualify for a Diploma in Commerce. If this were so, the practical or descriptive instruction in commercial subjects should not be taught in the University but in the Athenaeum. These practical classes should be taken in the student's last year or two in the Commercial College because the 'Glasgow curriculum does not include as separate classes practical Commercial Subjects such as are taught in Birmingham, Manchester, etc., and in America, viz.: Organisation of Business, Principles of Commerce, Accounting, Currency, Banking, etc.'[125]

Mann stated he was unsure these practical subjects could be taught to degree level. Instead they should be handled by the Commercial College and, as the College developed, such subjects should be gradually brought to a higher level. When this point was reached the University should recognise such classes for the high standard they were.[126] Urging caution Mr. Mann stated:

> My personal sympathies are naturally divided, but the conclusion I have reached is that, in the meantime, those who favour the institution of a Faculty of Commerce should be patient and await further results of similar work in England and Ireland, which is still in the experimental stage, and also watch carefully but sympathetically the course of the Commercial College within the next few years.[127]

When asked by the General Council his opinion regarding the institution of a degree in Commerce he replied that because of the breadth of the modern Arts curriculum the institution of a Faculty of Commerce was unnecessary but at the same time by every available means the education of businessmen to appreciate the value of academic training as preparation for commercial life should be proceeded with. Ultimately, practical commercial teaching could be possible on a higher standard than at present, either in the University or the Commercial College. The Arts degree could then be supplanted by a 'Diploma in Commerce' embracing University classes and certain recognised practical classes at the Commercial College. Additionally, for University students, specialised classes should be taken after the Arts curriculum as presently done with Law, Medicine, Engineering, Agriculture and Education in close association 'with practical "clinical" work.'

In conclusion he remarked 'but I ask, where is the University to find its "clinical" material, and provide the equivalent of Laboratory training in business unless through co-operation with the Commercial College?'[128] And, in 1914 the General Council resolved to postpone until after the War the institution of a Faculty of Commerce.[129] Following the cessation of hostilities the Council commented in the following terms that a degree in commerce should be instituted as soon as circumstances permitted:

> The court is no doubt keeping in view that the Courts of St. Andrews and Aberdeen are promoting Ordinances for a degree of B.Com. in these Universities, and that such a degree has now been definitely instituted in the University of Edinburgh.[130]

However, the Degree of Bachelor of Commerce was never established within the University of Glasgow.

SCIENCE

During 1909 the rearmament rivalry between Germany and the United Kingdom heightened. The British Government, ever mindful of the growing strength of Germany's economic and military strength, renewed its resolve to continue ruling the waves and so intensified the naval race which had commenced at the beginning of the twentieth century. In 1890 Britain thought Germany was her closest friend and ally in Europe. By the turn of the century this no longer seemed true. In 1898 the first German naval bill was passed which planned for 19 battleships and a large number of smaller vessels to be built by 1905. 1900 saw the second German naval bill which aimed for a doubling of the number of battleships by 1916. By 1902 these building plans aroused the concern of the British press.[131]

In 1904 Sir John Fisher, later Lord Fisher of Kilverstone, became First Sea Lord and led the race towards naval supremacy by scrapping obsolete vessels and causing battleships with large calibre guns to be built. The realisation of the speed of German naval construction caused widespread concern amongst senior naval personnel and some members of the Liberal government, resulting in four more battleships being laid down in 1909 with more to follow in the years up to the First World War.[132]

The sciences were seen as important tools in helping Britain to continue reigning supreme and the importance of science to the country was discussed within the University's administration at the opening of the century. A letter written in 1903 by the General Council and addressed to all graduates of the University as part of a fund-raising exercise, commented that the previous 50 years had been an era of revolution for British universities. The advance of technical and scientific studies were considered to have greatly widened the scope of university work and the public was beginning to

appreciate the need for universities '...and their importance for national prosperity.'[133] Which members of the public held these views was not clarified.

By the last quarter of the nineteenth century it was generally accepted by discerning educationists, industrialists and other interested parties that one of the reasons for Germany's industrial advance was the importance of technically and scientifically trained scientists in rising industries. One prominent Glasgow educationist wrote:

> But it appears to me, that no nation of the present day is going to become so much of a Teacher of other nations, as the new German Empire, which sprang into existence only 30 years ago. In virtue of that virile quality of 'thoroughness' of his, the German is now ahead of all others in Method, System and Organisation.[134]

So accepted were the educational traditions of postgraduate science organisation in Germany that these, along with ideas in the elementary stages of education, were quickly adopted in the USA.[135] Writing in 1901 Professor MacLay of the Glasgow and West of Scotland Technical College stated:

> ...his [Germany's] school system has long been an object of admiration for Educationalists in all parts of the world, and in these latter days, it looks as if he was going before long, to take the lead in Europe, in the Industrial World and probably become also a formidable rival to Britain in Shipping.[136]

In Britain innovation lagged mostly in those industries which had a large dependence upon applied science; chemical, dyestuffs and the electrical industries. Fortunately this deficiency had been observed for some time and lack of adequate funds had been highlighted as being one of the main reasons for Britain falling behind America, Germany, France, Belgium and other continental countries.[137]

The increased interest in science in the first decade of the twentieth century was reflected in the growing number of men and women opting for one or other of the wide choice of science courses in the University.[138] If there had been no demand then there would have been no cause for the University of Glasgow to clamour for funds from its

alumni in order to make better provision for this branch of teaching. Better facilities were required because the University was also competing against one of the most efficient and progressive technical establishments in Britain at the time; The Glasgow and West of Scotland Technical College. The University was eventually able to kill off this competition by the affiliation of the two institutions. This is dealt with later in this chapter.

As part of its rationalisation concerning the sciences, the General Council instructed the Committee on Educational Policy and Methods to investigate conditions of various faculties within the University at that time and to report as to their efficiency and running costs.[139] In particular the Committee was instructed to look for disproportionate teaching time of the non-scientific subjects such as Mental Science, including Divinity, compared with the teaching of Experimental Science, including Medicine. At the same time the Committee was instructed to respect the reputation of the University regarding the balance of faculties expected in a university which promoted the highest standards of education. In other words, make sure the University was teaching the right balance of the sciences and its 'traditional' subjects as befitted a university with the traditions of Glasgow.

Godliness and religion were not, however, to be forsaken. United Theological Study had been suggested by the Royal Commission of 1889 and these suggestions would now be examined in the light of the prevailing movements for union amongst several churches. The Committee was instructed to report on the need for new endowments to found new Chairs for increasing such research in Biblical Study and Comparative Religion as may help forward missionary work at home and abroad.[140]

Following the interest shown by the University in the sciences it is very interesting to examine the spending of the £1 000 Carnegie Trust grant during 1910 by the University Library. As listed in the minutes of the General Council the volumes bought were: Tschermak's *Mineralogische und Petrographische Mitteilungen Volumes I - XXVII;* Schlegel *Samtliche Werke in 12 Volumes;* Grote *Die Susswasser-Fische von Mittel Europa;* Jocher *Allegemeines Gelehreten Lexikon 11 Volumes. Biochemische Zeitschrift Volumes. I - XIV.*[141]

Amongst Schlegel's complete works in 12 volumes and the 11 volume German dictionary, there were books on mineralogy in 27 volumes and freshwater fish of Central Europe. There were also 14 volumes of periodicals on biochemistry, a German speciality of the time. In addition to these German scientific and intellectual works were: *Modern Philology Volumes. I - V; Tudor Translations in 44 Volumes;* and *Annals of British Legislature 1852-1868* in 18 Volumes, edited by Leone Levi [142]

THE ROYAL TECHNICAL COLLEGE

One of the major issues in which the University was involved prior to the First World War was the affiliation of The Royal Technical College. Negotiations for affiliation may be traced back to 1888, two years after the establishment of the Glasgow and West of Scotland Technical College. In 1912 the College became The Royal Technical College.

The Glasgow and West of Scotland Technical College was formed in 1886 by the amalgamation of several Glasgow technical institutions. Almost from the start it aimed at affiliation with the University. The University resisted the movement. From 1886 until affiliation in 1913 discussions on three major issues took place between the two institutions. Between the years 1888 and 1891 the College was trying to have its Diploma recognised as being equivalent to part of the B.Sc. degree of the University.[143] Commencing 1892 the College's main concern was in seeking affiliation. Concurrently it was striving to promote a joint-degree in Agricultural Science.[144]

Long before the Glasgow and West of Scotland Technical College was formed in 1886 the University had had a close association with the Andersonian, especially the Andersonian Medical School. Many of the teaching staff of the Andersonian had become members of staff at the University, the status of teaching in a university must not be underrated in this instance.

Relations between the two institutions did, however, have eighteenth century origins. A very convincing argument could be presented to show that the oldest technical institution in Glasgow in the nineteenth century, the Andersonian, (established 1796) was born out of conflict between John Anderson, its founder, and the University of Glasgow '...the Founder of the Andersonian Institution was not in very friendly favor (sic) towards the University of Glasgow.'[145]

Following years of relative harmony, conflict between the two institutions appeared in 1877. The reason for the conflict was the 'Anderson College Bill' whereby a change of name from Anderson's University to Anderson's College was sought by the

Andersonian. Glasgow University opposed the change because it thought that with the passing of the Bill the establishment of a rival, degree-awarding university was possible and even imminent. This posed a greater threat to the prosperity and status of the University of Glasgow than the present quasi-university.

Several meetings took place between the two Glasgow institutions with the Andersonian making concessions to the University by declaring that '...nothing...in this Act contained shall authorise the College, or any other body connected therewith, to grant degrees in any faculty, or to exercise any other function peculiar to a university.' [146]

Nothing would placate the University and on 23 February 1877 a Petition was presented to the House of Lords by the 'University and college of Glasgow' against the Bill.[147] The Petition against the Bill was scheduled to be heard on 6 March 1877 by a Committee of the House of Lords. However, on 5 March overtures for a compromise were made to the Andersonian by a solicitor acting for the University. Agreement was reached and the Bill was remitted to Lord Redesdale as Chairman of the Committee on Unopposed Bills.[148] This Committee reported in favour of the Bill which then proceeded through the proper channels until it became law on 17 May 1877.

The earliest reference to affiliation that can be found in University of Glasgow archival material refers to mid-1906 when it was moved that a Committee be appointed to consider the relations between the University and the Glasgow and West of Scotland Technical College 'with a view to further cooperation between the two institutions and to report.'[149]

Following this statement it took many years of discussion between them until in November 1912 the College was affiliated to the University by the 'Ordinance of the University Court of the University of Glasgow, No. 12 (Affiliation of the Royal Technical College, Glasgow).'[150] On 7 March 1913 the Order of Affiliation received the approval of 'His Majesty in Council' and the two institutions finally became officially affiliated. However, although the rivalry between the two institutions would not disappear, they now had closer ties by the Affiliation Order.

And so the two institutions proceeded into the future, neither aware of the world conflict which would shortly erupt. Both institutions fully expected to benefit from the amalgamation. The College, already a respected force in the field of technical education and the applied sciences, would now have the additional stamp of approval of being affiliated with one of the oldest universities in Britain. It would also be able to share in the University Grants Scheme.

The University also gained a great deal from the amalgamation, especially the use of the College's facilities for applied science teaching which the University lacked. Although Chairs in the Sciences had been in existence for many years in the University, it was not until 1873 that the first degrees in Science were conferred. Civil, Mechanical, and Electrical Engineering, Naval Architecture and Mining had been taught in the University for many years. However, writing in 1928, Principal MacAlister commented that 'the resources of the University for affording to its matriculated students instruction in these and other branches of applied Science were greatly increased by the affiliation with it of the large and well-equipped Royal Technical College in George Street.' [151]

CONCLUSION

This chapter has attempted to illustrate the business of the University in the years 1910-1914, including finances, the rising importance of applied science, entrance qualifications and the affiliation of The Royal Technical College with the University. The organisation of its tools of management and the major business undertaken in these years has been discussed.

Without students the University could not exist in the form it did, therefore, chapter 3 will look in detail at the student population: student numbers, gender, geographic origin, the courses enrolled for and the qualifications gained. Again, for the purposes of clarification and comparison, students of The Royal Technical College will occasionally be discussed.

CHAPTER 2

FOOTNOTES

[1] A L Walker *The Revival of the Democratic Intellect* (Edinburgh 1994) p.65
[2] Ibid p.67
[3] At its foundation the University of Glasgow was modelled on the University of Bologna and was also influenced by Paris.
[4] Walker *The Revival* p.68
[5] Idem. See Walter M Humes 'Science, Religion and Education: A study in Cultural Interaction' in *Scottish Culture and Scottish Education 1800-1980* pp.117-118
[6] *University of Glasgow, History and Constitution 1977-1978* (UG Press 1977) p.xii
[7] Ibid p.xvi
[8] UG Calendar 1919-1920 pp.43-44
[9] *University of Glasgow, History and Constitution.* pp.47-48
[10] Ibid p.90
[11] Forrester Ph. D pp.144, 149, 152-153, 156
[12] J Carter and D Withrington *Scottish Universities: Distinctiveness and Diversity* (Edinburgh 1992) pp.2-3
[13] *History and Constitution* p. XI
[14] *Ibid* p.48
[15] *Ibid* pp.52-54
[16] *Ibid* pp.48-49
[17] *Ibid* p.50
[18] Article by Sir Donald MacAlister 'The University of Glasgow' pp.89-90 in J. Graham Kerr ed. *General Handbook, British Association Glasgow Meeting 1928*
[19] *Ibid* pp.55-56
[20] UG Cal. 1920-1921 p.54
[21] UGGC Reports 28 October 1914 p.34
[22] Ibid pp.32-33
[23] Ibid p.33
[24] Ibid p.34
[25] Ibid p.35
[26] Ibid 26 April 1916 p.1
[27] Ibid 27 April 1910 p.1
[28] Ibid p.9
[29] Ibid pp.9-10
[30] Ibid p.15
[31] Ibid p.20
[32] Ibid p.21
[33] Ibid pp.28-29
[34] Ibid pp.31-33
[35] Ibid p.31
[36] Ibid p.23
[37] Idem
[38] Ibid p.26

[39] Idem
[40] Ibid p.27
[41] Idem
[42] UGGC Report April 1903 p.8
[43] Ibid p.9
[44] UGGC Report October 1931 Flyleaf, no pagination
[45] Ibid 26 April 1911 p.11
[46] Ibid October 1931 Flyleaf, no pagination
[47] Ibid 27 April 1932 Flyleaf, no pagination
[48] Ibid October 1902 p.4
[49] Sheldon Rothblatt 'Federal Universities and Multi-Campus Systems: Britain and the United States since the Nineteenth Century.' in Carter and Withrington *Scottish Universities:* pp.171-172
[50] UGCR 1919-1920, p.4; Ibid 1924-1925, p.5; Ibid 1930-1931 p.9.
[51] UGGC Report April 1902 p.15
[52] Ibid April 1902 p.17
[53] UGGC Rep 29 April 1914 p.52
[54] Calculated from data in Tables 2.2 and 2.3
[55] UGCR Rep 1920-1921 p.24
[56] See Table 3.11
[57] UG Cal. 1910-1911 pp.184-201
[58] UGGC Rep 25 October 1933 p.40
[59] Ibid 26 April 1911 p.18
[60] Percentage calculations: Men 1085/2108 = 51.47% Women 403/682 = 59.09%
[61] UGGC Rep 26 April 1911 p.22
[62] James Coutts *A History of the University of Glasgow 1451-1909* pp.472-473
[63] UGGC Rep 26 October 1910 p.23
[64] Ibid 26 April 1911 p.22
[65] Ibid 26 October 1910 p.27
[66] Ibid 26 October 1910 p.24
[67] Idem
[68] Ibid 26 October 1910 p.26
[69] Ibid 26 October 1910 p.25
[70] Idem
[71] Idem
[72] Ibid 26 April 1911 p.20
[73] Idem
[74] Record of the General Council of the University of Glasgow p.3 Vol.5 Ref. DC 183/1/5
[75] UG Cal. 1931-1932 p.69
[76] Ibid 1931-1932 p.70
[77] R D Anderson *Education and Opportunity in Victorian Scotland* (Edinburgh 1989) pp.299-300
[78] UGGC Rep 26 April 1911 p.21
[79] Ibid 26 April 1911 p.22
[80] Ibid 26 April 1911 p.33
[81] Ibid 26 April 1911 p.34
[82] Ibid 26 April 1911 p.35

[83] Ibid 26 April 1911 p.36
[84] Ibid 26 October 1910 p.30
[85] Ibid 26 April 1911 p.38
[86] J.Montgomery 'Education and Commerce' in *Royal Philosophical Society of Glasgow Proceedings Volume xlii 1910-1911* pp.111-124
[87] Ibid p.113
[88] Idem
[89] Idem
[90] J H Jones 'University Training for Commerce and Administration' in *Royal Philosophical Society of Glasgow Proceedings Volume xlv 1913-1914* pp.178-182
[91] Ibid p.174
[92] Ibid p.175
[93] For a detailed discussion of the Generalism V Specialism education argument see Walker *The Revival* especially ch.11 for a 19th and early 20th century view and ch.12 for a late 20th century perspective. Also George Davie *The Crisis of the Democratic Intellect* Part 1 pp.3-95
[94] UGGC Rep 26 April 1911 p.39
[95] Ibid 26 October 1910 p.30
[96] John Glaister 'Memoir of the late John Mann' in *Royal Philosophical Society of Glasgow Proceedings Volume xlii 1910-1911* pp.159-163
[97] Ibid p.160
[98] Ibid p.163
[99] UGGC Rep 26 April 1911 pp.38-40
[100] Ibid 26 April 1911 p.41
[101] Idem
[102] Ibid 26 April 1911 p.39
[103] Ibid 26 April 1911 p.42
[104] Idem
[105] J.Lauder *The Glasgow Athenaeum* p.172
[106] Ibid p.175
[107] Ibid p.176
[108] Ibid pp.2-4
[109] Ibid p.5
[110] J Graham *Scottish College of Commerce* p.7
[111] J Lauder *The Glasgow Athenaeum* p.7 and J W Hudson *The History of Adult Education* p.82
[112] Lauder *The Glasgow Athenaeum* pp.8-13
[113] Ibid p.15
[114] Athenaeum Annual Report for 1868 and others. All capitals used as in original text
[115] Lauder *The Glasgow Athenaeum* p.39
[116] Ibid p.92. See also Hudson ...*Adult Education* p.83 for details of class times and numbers attending.
[117] Lauder *The Glasgow Athenaeum* p.92
[118] Ibid p.74
The lectures were given gratuitously by a Dr. Nicol. Hudson *Adult Education* p.82
[119] Lauder *The Glasgow Athenaeum* p.70. See Hudson *Adult Education* p.84 for the effect of Emerson's lectures on his audience
[120] Lauder Ibid p.80

[121] Ibid p.93
For further details about the Glasgow Athenaeum during this period see Forrester Ph D pp.116-121
[122] UGGC Reports 26 April 1911 p.44
[123] Idem
[124] Ibid 26 April 1911 p.45
[125] Ibid 26 April 1911 p.46
[126] Idem
[127] Ibid 26 April 1911 p.47
[128] Ibid 26 April 1911 pp.47-48
[129] Ibid 28 October 1914 p.20
[130] Ibid 30 April 1919 p.21
[131] J M Roberts 'Seapower' in *History of the 20th Century* (London 1967) p.169
[132] Idem
[133] UGGC Rep 30 April 1919 p.5
[134] A MacLay 'Technical Colleges in Germany and in Glasgow' in *Royal Philosophical Society of Glasgow Proceedings Volume xxxii 1900-1901* p.76
[135] Peter Mathias *The First Industrial Nation* (London 1969) p.424
[136] A MacLay 'Technical Colleges in Germany and in Glasgow' in *Royal Philosophical Society of Glasgow Proceedings Volume xxxii 1900-1901* pp.76-77
[137] Forrester Ph D p.421
[138] In Session 1900-1901, 10 percent of males enrolled for one or other branch of science. In Session 1913-1914 this figure had risen to 23 percent. The corresponding statistics for women students were 2 percent and 6 percent. UG Calendars 1901-1902 and 1914-1915
[139] Ibid 27 April 1910 p.10
[140] Idem
[141] In translation: Tschermak's *Mineralogy and Rock Carving Communication*
Schlegel *Complete Works* in 12 volumes
Grote *The Freshwater Fish of Central Europe*
Jocher *Students German Dictionary* 11 volumes
Biochemistry Periodicals 14 volumes
[142] Ibid 26 April 1911 p.25
[143] GWSTC Mins 18 January 1888; UG Senate Mins. 26 January 1888
[144] UG Senate Mins 8 December 1892
[145] A Uni Mins 5 February 1877 p.436
[146] Ibid 28 February 1877 p.441
[147] Ibid 28 February 1877 p.442
[148] Ibid 22 March 1877 p.446
[149] UGCC Minutes 7 June 1906
[150] GWSTC Minutes 7 November 1912
[151] *B A Handbook 1928* p.91

CHAPTER 3

THE STUDENT POPULATION, 1910-1930

This chapter is included mainly for statistical purposes to show the composition and origins of those people for whom the University was providing courses. The war would obviously have an effect upon student numbers and to gauge this effect various tables have been compiled. Information from The Royal Technical College relevant to this thesis has been included.

As with all statistical data caution has to be exercised as to the absolute accuracy of the figures. Depending upon the source of the information numbers can vary. Fortunately the variations are only small and do not significantly change trends or conclusions reached. Only the most fastidious of statisticians would find fault with a possible error of a fraction of a decimal place when trends and not absolute results are being sought.

Statistical data for the University covering the period up to the summer of 1926 is contained in Volumes 3 and 4, Statistics. Volume 3 is exceptionally detailed for the earlier sessions up to 1912-13, but by session 1913-1914 only the barest details are given. The data are sectionalised into Summer Session, Males; Summer Session, Females; Summer Session Single Class Enrolments, Males and Females; Winter Session, Males; Winter Session, Females; Winter Session Single Class Enrolments, Male and Female.

Initially, information was recorded regarding students' ages in each faculty, father's occupation, geographic origin of each student and the proportion of students in each year of study. By session 1913-1914 the information presented was far less detailed, limited to the number of male and female students, the numbers enrolled in each faculty and their geographic origin. And this format continues until the end of the Volume in

the summer of 1926. The last entry simply stated how many males were enrolled in the Faculties of Arts, Science, Law, Medicine and Engineering. This final entry was made without further explanation of where the information was to be found in the future. However, in a different format and without giving parental occupation, it was presented in University Grants Committee Returns, with data commencing session 1919-1920 available.

In order to have an awareness of student numbers over the period 1910-1930 Table 3.1 has been produced showing the number of male and female students in attendance at the University.

TABLE 3.1. UNIVERSITY OF GLASGOW STUDENT NUMBERS, SESSIONS 1910-1911 TO 1930-1931

Session	Male (M)	Percentage change	Female (F)	Percentage change	Total	Percentage change	Ratio M:F
1910-11	2 108	none	682	none	2 790	none	3.1:1
1911-12	2 113	+ 0.2	681	- 0.1	2 794	+ 0.1	3.1:1
1912-13	2 187	+ 3.5	648	- 4.9	2 835	+ 1.5	3.4:1
1913-14	2 254	+ 3.1	662	+ 2.2	2 916	+ 2.9	3.4:1
1914-15	1 835	- 18.6	635	- 4.1	2 470	- 15.3	2.9:1
1915-16	1 164	- 36.6	658	+ 3.6	1 822	- 26.2	1.8:1
1916-17	909	- 22.0	753	+ 14.4	1 662	- 8.8	1.2:1
1917-18	1 049	+ 15.4	872	+ 15.8	1 921	+ 15.6	1.2:1
1918-19	2 113	+101.4	955	+ 9.5	3 068	+ 59.7	2.2:1
1919-20	3 177	+ 50.4	1 027	+ 7.5	4 204	+ 37.0	3.1:1
1920-21	3 585	+ 12.8	1 142	+ 11.2	4 727	+ 12.4	3.1:1
1921-22	3 635	+ 1.4	1 221	+ 6.9	4 856	+ 2.7	3.0:1
1922-23	3 543	- 2.5	1 353	+ 10.8	4 896	+ 0.8	2.6:1
1923-24	3 275	- 7.6	1 419	+ 4.9	4 694	- 4.1	2.3:1
1924-25	3 069	- 6.3	1 529	+ 7.8	4 598	- 2.0	2.0:1
1925-26	3 049	- 0.7	1 440	- 5.8	4 489	- 2.4	2.1:1
1926-27	3 292	+ 8.0	1 489	+ 3.4	4 781	+ 6.5	2.2:1
1927-28	3 624	+ 10.1	1 670	+ 12.2	5 294	+ 10.7	2.2:1
1928-29	3 803	+ 4.9	1 693	+ 1.4	5 496	+ 3.8	2.3:1
1929-30	3 848	+ 1.2	1 681	- 0.7	5 529	+ 0.6	2.3:1
1930-31	3 898	+ 1.3	1 633	- 2.9	5 531	+ 0.1	2.4:1
Totals	57 530	+ 84.9	23 843	+ 139.4	81 373	+ 98.2	2.4:1

Source: UG Calendars 1910-11 to 1931-32 (UG ref. 65198 - 10/107)
See also UG Statistics Vols. 3 and 4 (UG refs. 32610 and 32611)
UG General Council Reports 1903-1929 (UG ref. DC 183/3/3)
UG General Council Reports 1929-1939 (UG ref. DC 183/3/4)

Percentages and ratios calculated and rounded correct to the nearest decimal place.

A perusal of Table 3.1 shows, not unexpectedly, a dramatic drop in male student numbers during the war years and then a surge following the establishment of peace. In the ensuing years numbers steadily increased and in session 1930-1931 there were 1 633 female students. This was a drop of 60 students over the peak session 1928-1929. There were also more male students but the pre-war ratio of 3.1 male students per female student had fallen to 2.4 to 1. Over the period covered by Table 3.1 the male student population showed an increase of almost 85 percent whilst the female increase over the same period was in the region of 140 percent. The total student numbers had almost doubled over this 21 year period.

Before the war, the total student population had never exceeded 3 000. For session 1919-1920 over 4 200 students enrolled in a university that was never designed to hold that number. By session 1930-1931 the total student population had grown to over 5 500. Classes were described as crammed and 'out of hand' with students who were rowdy and uncontrollable. Reminiscing on the post-war years, a student of the time related that he attended one class that was so disorderly that the lecturer could not be heard over the uproar. Being so frustrated the lecturer turned his back on the class and wrote his lecture on the blackboard. Conditions did not improve and the lecturer repeated his actions twice a week from October 1919 to March 1920.[1]

In order to have a wider understanding of the age range of the student population attending Scottish universities generally and the University of Glasgow specifically, tables have been compiled to show the age composition of students. In the first instance the age range of those entering university for the first time are examined in the three benchmark sessions of 1919-1920, 1924-1925 and 1930-1931. These sessions were chosen as they represent the first full post-war session, the final one covered by this thesis and the intermediate session. Following this information are details and analysis of the University of Glasgow students enrolled by faculty for session 1910-1911.

TABLE 3.2. AGE AT ADMISSION OF FULL-TIME STUDENTS ENTERING SCOTTISH UNIVERSITIES FOR THE FIRST TIME DURING SESSION 1919-1920

	NUMBER ADMITTED						UNDER 17				17 UNDER 18				18 UNDER 19				19 AND OVER			
	Graduating		Diploma		Total		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma	
University	Male	Female	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	202	125	91	6	293	131	11	1	4	nil	30	23	8	4	47	54	16	2	114	47	63	nil
Edinburgh	1 156	304	13 nil	nil	1 169	304	19	6	nil	nil	117	70	nil	nil	155	106	nil	nil	865	122	13	nil
Glasgow	1 302	272	nil	nil	1 302	272	66	5	nil	nil	201	57	nil	nil	140	90	nil	nil	895	120	nil	nil
TRTCG	207	1	191	1	398	2	nil	nil	1	nil	7	1	6	1	32	nil	13	nil	168	nil	171	nil
St.Andrews and Dundee	159	76	nil	nil	159	76	nil	nil	nil	nil	3	2	nil	nil	15	7	nil	nil	141	67	nil	nil
Total	3 026	778	295	7	3 321	785	96	12	5	nil	358	153	14	5	389	257	29	2	2 183	356	247	nil
Percentage Glasgow to Total	43.0	35.0	nil	nil	39.2	34.7	68.8	41.7	nil	nil	56.1	37.3	nil	nil	36.0	35.0	nil	nil	41.0	33.7	nil	nil

SOURCE: University Grants Committee Returns for session 1919-1920, pp. 5-6.

Percentages calculated and rounded correct to nearest decimal place.

TABLE 3.3. AGE AT ADMISSION OF FULL-TIME STUDENTS ENTERING SCOTTISH UNIVERSITIES FOR THE FIRST TIME DURING SESSION 1924-1925

	NUMBER ADMITTED						UNDER 17				17 UNDER 18				18 UNDER 19				19 AND OVER			
	Graduating		Diploma		Total		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma	
University	Male	Female	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	185	134	19	3	204	137	48	18	7	2	57	70	7	1	40	30	1	nil	40	16	4	nil
Edinburgh	410	280	3	5	413	285	8	6	nil	nil	83	54	nil	1	163	135	2	nil	156	85	1	4
Glasgow	656	404	nil	nil	656	404	40	13	nil	nil	165	125	nil	nil	231	168	nil	nil	220	98	nil	nil
TRTCG	31	2	67	15	98	17	nil	nil	1	1	5	1	7	3	12	nil	16	4	14	1	43	7
St.Andrews and Dundee	69	62	3	nil	72	62	3	1	nil	nil	12	10	nil	nil	32	35	2	nil	22	16	1	nil
Total	1 351	882	92	23	1 443	905	99	38	8	3	322	260	14	5	478	368	21	4	452	216	49	11
Percentage Glasgow to Total	48.6	45.8	nil	nil	45.5	44.6	40.4	34.2	nil	nil	51.2	48.1	nil	nil	48.3	45.7	nil	nil	48.7	45.4	nil	nil

SOURCE: University Grants Committee Returns for session 1919-1920, pp. 5-6.

Percentages calculated and rounded correct to nearest decimal place.

TABLE 3.4. AGE AT ADMISSION OF FULL-TIME STUDENTS ENTERING SCOTTISH UNIVERSITIES FOR THE FIRST TIME DURING SESSION 1930-1931

	NUMBER ADMITTED						UNDER 17				17 UNDER 18				18 UNDER 19				19 AND OVER			
	Graduating		Diploma		Total		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma		Graduating		Diploma	
	Male	Female	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	151	128	9	4	160	132	37	27	nil	3	58	66	1	nil	29	30	3	1	29	5	5	nil
Edinburgh	502	287	nil	nil	502	287	7	8	nil	nil	96	59	nil	nil	181	136	nil	nil	218	84	nil	nil
Glasgow	763	426	nil	nil	763	426	27	14	nil	nil	249	126	nil	nil	261	165	nil	nil	226	121	nil	nil
TRTCG	44	2	94	10	138	12	nil	nil	nil	nil	6	nil	3	4	12	2	11	nil	26	nil	80	6
St. Andrews & Dundee	98	79	4	nil	102	79	2	1	nil	nil	24	19	1	nil	36	41	1	nil	36	18	2	nil
Total	1558	922	107	14	1665	936	73	50	nil	3	433	270	5	4	519	374	15	1	535	228	87	6
Percentage Glasgow to Total	49.0	46.2	nil	nil	45.8	45.5	37.0	28.0	nil	nil	57.5	46.7	nil	nil	50.3	44.1	nil	nil	42.2	53.1	nil	nil

Source: UGCR 1930-1931 pp.10-11

A comparison of the three Tables 3.2; 3.3 and 3.4 establishes that in the first full session following the war the University of Glasgow had more male first year students than any of the other Scottish higher education establishments whilst the University of Edinburgh had marginally more first year female students. During sessions 1924-1925 and 1930-1931 Glasgow had the most male and female matriculating students of the institutions listed. In session 1919-1920, Edinburgh had 13 male diploma students whilst Glasgow had none, this work being undertaken by the University's affiliated College. In total, Glasgow had 1 574 first year students and Edinburgh 1 473, a difference of 101 in favour of Glasgow. Together these two universities had over 74 percent of the total male first year students and over 73 percent of the female first year students.[2]

In all cases the overwhelming majority of those enrolled were aged 19 and over, indicating that all the establishments were probably admitting ex-servicemen in preference to other members of the population. By session 1919-1920 the proportion of student ex-servicemen under the age of 19 would have been far lower than those aged over 19 years.

For illustrative purposes Tables 3.5 and 3.6 have been compiled showing the age grouping of men and women by faculty attending the University of Glasgow during the winter session 1910-1911. In the summer session of 1910, 70 males were enrolled in the four faculties as follows: Medicine 59, Theology 5, Science 4 and Law 2. Their ages ranged from 15 to 33 years.

TABLE 3.5. UNIVERSITY OF GLASGOW. AGE GROUPING OF MALES ATTENDING WINTER SESSION 1910-1911

FACULTY AND STUDENT NUMBERS

Age	Arts	Science	Theology	Medicine	Law	Other	Total
15	nil	nil	nil	1	nil	nil	1
16	8	2	nil	4	nil	nil	14
17	42	13	nil	29	1	nil	85
18	111	36	nil	53	nil	1	201
19	179	56	1	83	15	2	336
20	155	79	1	70	44	1	350
21	101	53	2	95	40	2	293
22	57	55	10	75	30	1	228
23	23	27	10	45	17	nil	122
24	29	33	8	29	9	nil	108
25	7	16	2	29	6	nil	60
26	13	13	1	19	4	nil	50
27	2	10	5	12	1	nil	30
28	5	5	1	12	nil	nil	23
29	2	5	3	8	1	nil	19
30	3	2	1	7	nil	nil	13
31	7	4	nil	5	2	nil	18
32	3	8	nil	4	1	nil	16
33	1	1	2	1	1	nil	6
34	2	1	nil	2	nil	nil	5
35	1	nil	nil	1	nil	nil	2
36	nil	1	nil	4	nil	nil	5
37	1	nil	1	nil	nil	nil	2
38	nil	nil	nil	1	nil	nil	1
39	1	1	nil	1	nil	nil	3
40	nil	1	nil	1	nil	nil	2
41	nil	nil	1	nil	nil	nil	1
42	1	nil	nil	1	nil	nil	2
45	nil	nil	1	nil	nil	nil	1
46	nil	1	nil	nil	nil	nil	1
49	nil	2	nil	nil	nil	nil	2
52	nil	nil	nil	1	nil	nil	1
Totals	754	425	50	593	172	7	2 001
Percent of total	38	21	2	30	9	negligible	100

Percentages calculated correct to the nearest whole number

Source: UG Statistics Vol. 3 No pagination (UG ref. 32610)

TABLE 3.6. UNIVERSITY OF GLASGOW. AGE GROUPING OF FEMALES ATTENDING WINTER SESSION 1910-1911

FACULTY AND STUDENT NUMBERS

Age	Arts	Science	Medicine	Law	Theology	Total
16	2	nil	nil	nil	nil	2
17	24	3	2	nil	nil	29
18	69	5	3	nil	nil	77
19	125	3	7	nil	nil	135
20	134	5	8	nil	nil	147
21	91	4	10	nil	nil	105
22	43	3	11	nil	nil	57
23	29	1	7	1	nil	38
24	10	nil	4	nil	nil	14
25	6	nil	2	nil	nil	8
26	2	1	3	nil	nil	6
27	5	1	nil	nil	nil	6
28	4	1	5	nil	nil	10
29	nil	nil	1	nil	nil	1
30	1	1	nil	nil	1	3
31	3	nil	nil	nil	nil	3
32	1	1	nil	nil	nil	2
33	1	nil	nil	nil	nil	1
34	nil	nil	1	nil	nil	1
35	nil	1	nil	nil	nil	1
36	nil	nil	1	nil	nil	1
39	nil	nil	1	nil	nil	1
Totals	550	30	66	1	1	648
Percentage of total	85	5	10	negligible	negligible	100

Percentages calculated correct to the nearest whole number

Source: UG Statistics Vol. 3. No pagination. (UG ref. 32610)

An examination of Table 3.5 reveals that 2 001 male students were enrolled for classes during the winter session of 1910-1911 and their ages ranged from 15 years to 52 years. Of these students the majority were between 18 and 24 years of age. There were 1 638 students in this age range which equates to 82 percent of the total population.[3] Interestingly, the youngest student, 15 years, and the oldest, 52 years, were both enrolled in the Faculty of Medicine. In rank order, the Faculty of Arts had the largest enrolment with 38 percent of the total, followed by Medicine (30 percent), Science (21 percent), Law (9 percent) and Theology (2 percent). Other enrolments were negligible at 0.35 percent.

When considering the female age grouping it is discernible that the majority of students were within the narrow age group 18 to 21 years. (72 percent) However, if the identical parameters to those used for the male population are applied, 18 to 24 years, this rises to over 88 percent, or, 573 students out of a female population of 648. The two youngest students were aged 16 and enrolled in the Faculty of Arts. The oldest was 39 and enrolled in the Faculty of Medicine.[4]

Of the 2 001 students indicated in Table 3.5, 1 654 were born in Scotland and of these 817 were from Lanarkshire. The remaining 347 students were born as follows: England 93; Ireland 18 and Wales 7. Another 229 students were from 37 separate foreign countries whilst 2 were listed as 'at sea.'[5]

India was the place of birth for 70 of the 229 foreign-born students and 62 of these (89 percent) were enrolled in the Faculty of Science. One must bear in mind that many of these foreign-born students were very possibly the children of Scottish parents, sent to Scotland to complete their higher education. The statistics only state the country of birth and make no comment upon the parentage of the students. Considering the importance of India to imperialist Britain it is not remarkable that so many foreign-born students originated from this country.

Edinburgh University also had a large Indian student population. In December 1916 the *Glasgow Herald* carried an appeal by Dr. Miller, the Indian Student Adviser in Edinburgh. He emphasised the folly of the Indian students trying for too many degrees at once and suggested it should be the aim of local Advisory Committees in India to advise boys going to Scotland to be content with striving for one degree at a time.[6]

What is remarkable is the number of students from China. During the 1910-1911 Winter Session there were 33 students from this country and 29 of them (88 percent) were enrolled in the Faculty of Science. These students had enrolled for the practical sciences and not the 'frivolous' Arts course, perhaps seeing more job opportunities in this sector of the economy, either in their country of origin, in Britain, or some other

country. It is possible that these students were from the British colony of Hong Kong and not mainland China.

However, the statistics presented indicate that overall the University at this time catered predominantly for Scottish-born students (75 percent) with 50 percent of these from Lanarkshire. Although not necessarily the final work destination for all the graduating students, the burgeoning Scottish economy would have been an obvious choice for the majority.

Understandably, the most popular faculty for the females was the Faculty of Arts commanding 85 percent of the total enrolment. An unquantifiable number of these females were probably destined for the teaching profession and the Arts degree was the foundation for this career. Of the other faculties, Medicine was second in popularity with 10 percent and Science with 5 percent enrolment. Law and Theology had one enrolment each. The single female enrolment in the Faculty of Divinity was from the United States of America.

Of the 648 female students, 560 were born in Scotland (86 percent) and of these 278 were from Lanarkshire (50 percent). The remaining 89 students were born as follows: England 47; Ireland 6 and Wales 1. 35 students were from 17 foreign countries and 7 of these 'foreign countries' were classed as 'Empire' countries. Five students were from the United States, 4 of them enrolled in the Faculty of Arts and 1 in Theology.[7]

The occupation of both the male and female student's father was given in the years prior to session 1913-1914. For the winter session of 1910-1911, it was shown that there were 152 different paternal occupations of the 2 001 male students. Many of the occupations were distinctly 'working class'. For example, there were 73 carpenters, 43 labourers and 7 plumbers listed.

In many cases the occupation of the father was a definite influence on the type of course for which the son enrolled. For example, there were 116 'Medical Practitioners' listed and of these, 80 of their sons enrolled for Medicine, (69 percent) 20 Science, 14 Arts, 1 Law and 1 'Other'. Of the 55 'Writers' (Solicitors) listed, 26 sons were in the

Faculty of Law, (47 percent) 14 Arts, 10 Science and 5 Medicine. On the other hand, of the 128 Clergymen, only four of their sons enrolled in the Faculty of Divinity, (3 percent) 61 were in the Faculty of Arts, 35 Medicine, 16 Science and 12 Law. The majority of the sons of the carpenters, labourers and plumbers enrolled in the Faculty of Arts.[8]

When considering the occupations of the fathers of the female student population for the 1910-1911 Winter Session there were 112 different occupations registered. Amongst the occupations were the distinct working class jobs of Carpenter (20), Labourer (8), Plumber (3), Miner (3) Pattern Maker (3), Janitor (2) and Plater (1). This reveals that approximately 36 percent of the fathers of the female students were what can be legitimately described as working class, indicating that they had aspirations for the educational and economic betterment of their daughters compared with their own occupations. Mirroring their male counterparts, the majority of the daughters of these working class fathers enrolled in the Faculty of Arts.

Twenty Medical Practitioners were listed and 9 daughters of those enrolled in the Faculty of Medicine (45 percent) with 10 enrolling in the Faculty of Arts (50 percent). As an example, other parental occupations were: Clergymen, 53 with 42 of their daughters enrolling in the Faculty of Arts (79 percent); 43 Teachers, 42 daughters in Arts (98 percent); 44 Merchants, 37 in Arts (84 percent), 7 Medicine (16 percent); 33 Engineers, 28 Arts (85 percent), 2 Science, 1 Medicine; 30 Managers, 26 Arts (87 percent), 3 Science (10 percent), 1 Medicine; 20 Manufacturers, 16 Arts (80 percent), 3 Medicine (15 percent) and 1 Science. There were 30 Clerks, who were 'white collar' working class, compared with the 'blue collar' already discussed. Of these 30, 29 daughters entered the Faculty of Arts (97 percent) and 1 Law.[9]

There were 17 females enrolled for single classes during the 1910-1911 Winter Session. These were aged between 21 and 44 years and all were from Scotland. Twelve of the 17 enrolled for the Celtic Language class, 4 Elementary Italian and 1 Bacteriology. The areas of Scotland from which the females originated were: Lanarkshire, 5; Argyllshire, 5; Ross, 4 and Inverness 3. Of the 5 females from Argyll,

4 were studying Italian, 1 Bacteriology and 1 Celtic. All the females from the other regions were studying Celtic.[10]

By the first full academic session following the war, 1919-1920, the conditions for admission to a Scottish university had been formalised under rules drawn up by the Scottish Universities Entrance Board. The entrance qualifications were the same for both men and women. A Leaving Certificate or success in the Universities Preliminary Examination was required. Upon entry, medical students had to be at least 16 years of age. This was the only case in which an age limit was imposed.[11] In 1897 the arrangements for research work were systematised. Between the years 1897 to 1920 about 130 research students had been in attendance at the University. The average duration of attendance was stated to be usually two years.[12]

During the 1920's the University did not undertake the responsibility of providing accommodation for its students but, immediately following the war, the question was under consideration by the Court. Certain office bearers and committees within the University, such as the SRC, did provide hostel accommodation for students. The information provided by the University to the University Grants Committee stated that a student should expect to pay between 30 shillings and 35 shillings (£1.50p - £1.75p) per week for board and lodging in hostel accommodation in the Glasgow area and in lodgings, about £2 per week for board and lodging.[13]

In addition to these costs was the cost of the degree course undertaken by the individual student. The total matriculation, class and examination fees a student could expect to pay over the course duration was given as follows: M A £40 to £50; B Sc £60 to £70; M B Ch B £150; B L £30; LL B £30 to £40 (in addition to Arts course); B D £35 (in addition to Arts course). Although grants could be obtained from the Carnegie Trust no grants were allocated from local authorities.[14]

The Scottish full-time university student population grew by almost one-third during session 1919-1920 compared with the pre-war session 1913-1914. Table 3.7 presents comparative statistics relating to university student numbers in Scotland, England, Wales and Ireland both pre and post-war.

TABLE 3.7. COMPARISON OF UNITED KINGDOM FULL-TIME STUDENT NUMBERS, SESSIONS 1913-1914 AND 1919-1920

Country	1913-1914	1919-1920	Percentage change
Scotland	8 419	10 992	+ 31
England	10 808	19 829	+ 84
Ireland	1 777	3 130	+ 76
Wales	1 230	2 473	+ 101
United Kingdom	22 234	36 424	+ 64

Source: UGCR 1919-1920, p.2 (UG ref. LB 1431 1919)

Percentages calculated correct to the nearest whole number

These statistics relate only to those universities in receipt of annual grant aid. Not included were the Universities of Oxford; Cambridge; Trinity College, Dublin and Guys' Hospital Medical School. Also not included were those institutions in receipt of the grant for the first time.

The figures confirm the large increase in student numbers following the cessation of hostilities in 1918. They also indicate the relaxed entry restrictions in the immediate post-war period as the Government gave every chance to returning service personnel to participate in university and other branches of higher education, either as first-time or continuing students.

Glasgow University had a policy of giving preference to ex-service students over non-service personnel. In early 1919, 200 ex-servicemen had enrolled for the first year summer classes in the Faculty of Medicine. This was the full complement and the University decided to postpone entry until October for the younger students who were entering directly from school and wished to start summer classes.[15]

The UGCR gave details of the home and university residence of full-time students attending university in Scotland. Tables 3.8; 3.9 and 3.10 detail the home and university residence of male and female students in attendance during sessions 1919-1920; 1924-1925 and 1930-1931. For comparison, all the Scottish universities and the affiliated Glasgow University college, The Royal Technical College, are detailed.

TABLE 3.8. HOME AND UNIVERSITY RESIDENCE OF SCOTTISH MALE AND FEMALE FULL-TIME STUDENTS 1919-1920

	HOME RESIDENCE					UNIVERSITY RESIDENCE					
						Halls of residence		Lodgings		At home	
University	Total students	Within 30 miles	Other parts of UK	Outwith UK but in Empire	Foreign	M	F	M	F	M	F
Aberdeen	1 638	873	713	45	7	nil	nil	615	278	520	225
Edinburgh	4 182	2 328	1 360	436	58	58	210	1 747	360	1 342	465
Glasgow	3 808	1 900	1 706	102	100	33	67	1 717	335	1 106	550
TRTCG	567	374	152	17	24	nil	nil	163	2	399	3
St Andrews and Dundee	797	631	146	12	8	nil	112	236	74	257	118
Total Scotland	10 992	6 106	4 077	612	197	91	389	4 478	1 049	3 624	1 361
Percentage Glasgow to Scotland	34.6	31.1	41.8	16.7	50.8	36.3	17.2	38.3	31.9	30.5	40.4

All percentages calculated correct to the nearest decimal place.

Source:. University Grants Committee Returns for 1919-1920 p.4

TABLE 3.9. HOME AND UNIVERSITY RESIDENCE OF SCOTTISH MALE AND FEMALE FULL-TIME STUDENTS 1924-1925

		HOME RESIDENCE				UNIVERSITY RESIDENCE					
						Halls of residence		Lodgings		At home	
University	Total students	Within 30 miles	Other parts of UK	Outwith UK but in Empire	Foreign	M	F	M	F	M	F
Aberdeen	1 374	731	591	42	10	nil	nil	417	314	416	227
Edinburgh	3 326	1 805	1 055	378	88	118	238	1 137	288	985	560
Glasgow	4 064	2 975	928	122	39	79	79	875	244	1 701	1 086
TRTCG	398	270	103	22	3	nil	nil	101	2	275	20
St Andrews and Dundee	608	462	119	23	4	20	85	150	67	164	122
Total Scotland	9 770	6 243	2 796	587	144	217	402	2 680	915	3 541	2 015
Total Britain	41 794	20 287	17 696	2 460	1 351	5 557	4 249	11 846	2 224	11 510	6 408
Percentage Scotland to Britain	23.4	30.8	15.8	23.9	10.7	3.9	9.5	22.6	41.1	30.8	31.4
Percentage Glasgow to Scotland	41.6	47.7	33.2	20.8	27.1	36.4	19.7	32.6	26.7	48.0	53.9

All percentages calculated correct to the nearest decimal place.

Source: University Grants Committee Returns for 1924-1925 p.5

TABLE 3.10. HOME AND UNIVERSITY RESIDENCE OF SCOTTISH MALE AND FEMALE FULL-TIME STUDENTS 1930-1931

				HOME RESIDENCE				UNIVERSITY RESIDENCE					
								Colleges & Hostels		Lodgings		At Home	
University	Male	Female	Total	Within 30 miles	Other parts of UK	Within Empire	Foreign	Males	Females	Males	Females	Males	Females
Aberdeen	826	417	1 243	689	511	24	19	nil	nil	385	199	441	218
Edinburgh	2 541	1 184	3 725	1 961	1 158	387	219	191	308	1 235	227	1 115	649
Glasgow	3 425	1 601	5 026	3 465	1 312	164	85	86	75	674	224	2 665	1 302
TRTCG	327	30	357	253	87	9	8	3	nil	84	3	240	27
St.Andrews & Dundee	495	304	799	499	190	19	91	58	128	283	78	154	98
Total Scotland	7 614	3 536	11 150	6 867	3 258	603	422	338	511	2 661	731	4 615	2 294
Total Britain	34 629	12 958	47 587	21 980	21 039	2 759	1 809	7 108	4 636	13 419	2 145	14 102	6 177
Percentage Scotland to Britain	22.0	27.3	23.4	31.2	15.5	21.9	23.3	4.8	11.0	19.8	34.1	32.7	37.1
Percentage Glasgow to Scotland	45.0	45.3	45.1	50.5	40.3	27.2	20.1	25.4	14.7	25.3	30.6	57.8	56.8

Percentages calculated correct to the nearest decimal place.

Source: UGCR 1930-1931 p.9

Tables 3.8; 3.9 and 3.10 are basically divided into two sections. On the one hand they show the ordinary, or home residence of the students. The second part shows where the students resided whilst attending university. By 1920, only one of the four Scottish universities, Aberdeen, did not have University Halls of Residence. TRTCG, although affiliated to the University of Glasgow, was a Central Institution.

It is interesting to note the comparative student populations of the institutions. In session 1919-1920 Edinburgh had the largest with 4 182 full-time students, followed by Glasgow with 3 808. Together these two universities, situated as they were in the densely populated central belt of industrialised Scotland, accounted for 73 percent of the total student population.[16] When the TRTCG total is included the figure rises to 78 percent.[17] Glasgow attracted the most foreign students whilst large numbers from the Empire chose Edinburgh.[18] In the case of each of the four universities and the College, the majority of students came from within a thirty mile radius of where they were to be educated. Glasgow had the smallest number with 50 percent and St. Andrews and Dundee the highest with 79 percent.[19] Overall, almost 56 percent of the total students resided within 30 miles of their selected university, including those students from TRTCG.[20] If TRTCG students are not taken into account the figure is still in excess of 52 percent.[21]

Not unnaturally, the majority of these students residing within travelling distance of the university of their choice, lived at home during term-time.[22] Referring to Table 3.8, by some strange quirk of statistics, or a mistake in the numbers, TRTCG had more students living at home than lived within 30 miles of the College. 374 students were shown to live within 30 miles and yet 402 lived at home. It is possible, but highly unlikely, that all those within 30 miles lived at home plus others who lived outside this range, travelling each day from home to the College.

Tables 3.9 and 3.10 give the same type of information for sessions 1924-1925 and 1930-1931 respectively. For these sessions the male and female statistics were separated by the UGCR, giving greater detail than in previous years. Additional

information was the total British university students in each category. These Tables show the changing pattern of the origins of the students attending the universities.

Alone amongst the Scottish universities and the College, the University of Glasgow showed a growth in the student population; from 3 808 in 1919-1920 to 4 064 in 1924-1925 and 5 026 in 1930-1931. The Universities of Aberdeen and Edinburgh and TRTCG showed significant falls whilst St. Andrews and Dundee had two more students in 1930-1931 than in 1919-1920.

Glasgow's proportion of students from within the Empire remained approximately the same over the period whilst the proportion of foreign students varied between one and three percent of the total number of students. Edinburgh showed a growth in its foreign student population from one percent in 1919-1920 through three percent in 1924-1925 to six percent in 1930-1931.[23]

By 1930-1931 St. Andrews and Dundee combined had seen the number of foreign students grow from 8 (1 percent) in 1919-1920 to 91 (11 percent) in 1930-1931. In this session the Scottish and British percentages of foreign students in attendance was four percent in each case. The University of Glasgow had two percent.[24]

Consideration must also be given to the type of courses for which students were enrolling in the University, both pre and post-war. Table 3.11 shows the number of male students enrolled in the various faculties over the period 1910-1911 to 1930-1931.

TABLE 3.11. UNIVERSITY OF GLASGOW. MALE STUDENT ENROLMENT BY FACULTY, 1910-1911 TO 1930-1931

Session	Arts	Science	Theology	Medicine	Law	Eng'ng	Others	Total
1910-11	755	431	55	651	174	-	42	2 108
1911-12	748	425	62	643	192	-	43	2 113
1912-13	729	448	57	630	203	-	120	2 187
1913-14	776	509	69	712	179	-	10	2 255
1914-15	564	364	71	660	114	-	62	1 835
1915-16	251	206	39	591	46	-	31	1 164
1916-17	158	150	20	541	31	-	9	909
1917-18	138	142	9	712	27	-	21	1 049
1918-19	378	332	47	1 296	42	-	45	2 140
1919-20	603	871	56	1 371	181	-	95	3 177
1920-21	618	1 145	36	1 386	262	-	138	3 585
1921-22	591	1 274	33	1 302	291	-	144	3 635
1922-23	617	1 190	48	1 254	260	-	174	3 543
1923-24	675	1 081	54	1 047	241	-	177	3 275
1924-25	801	411	9	785	229	532	302	3 069
1925-26	936	396	12	692	252	435	326	3 049
1926-27	1 112	425	11	714	336	391	303	3 292
1927-28	1 369	416	66	728	425	386	234	3 624
1928-29	1 537	370	80	726	428	376	286	3 803
1929-30	1 594	384	98*	732	445	376	216	3 845
1930-31	1 634	408	105	767	403	353	228	3 898
Totals	16 584	11 378	1 037	17 940	4 761	2 849	3 006	57 555
Average percent	28.8	19.8	1.8	31.1	8.3	5.0	5.2	100.0

*This total includes graduates in Arts attending classes or researching in the Faculty of Theology.
Engineering was created as a separate Faculty in 1923.

Source: UG Calendars for sessions indicated.

An examination of Table 3.11 discloses that no single Faculty was predominantly popular over the 21 year time span. From 1910-1914 the Faculty of Arts had the greatest number of students closely followed by the Faculty of Medicine. Following the end of the War the Faculty of Medicine had a tremendous boost in numbers. During session 1913-1914 there had been 712 men enrolled for Medicine. In session 1918-1919 there were 1 296 and the numbers stayed above 1 000 until 1924-1925.

The huge increase in Medical students was probably due in part to the war-time exposure to the medical fraternity by members of the civilian population and HM Forces. The replacement of those doctors lost in the war also helps to explain the huge

increase in the number of students following medical studies. The financial aid given by the Government to assist ex-servicemen to participate in higher education was also a great stimulus to the growth in the student population.

When Glasgow University data are examined it becomes noticeable that there was a significant increase in the number of students enrolling for science courses. This increase was not a direct result of the War but more a reflection of the economic climate not only of Glasgow but of the developed world generally. This may be demonstrated by examining the courses enrolled for by students. In session 1893-1894 there were 1 915 male students in the University. Of these, 132 enrolled for a science subject (6.9 percent).[25] Over the years, the science students gradually increased until by session 1913-1914 there were 509 science students out of a total male population of 2 254 (22.6 percent).[26] The following session the numbers dropped proportionally to 412 science students and a male student population of 1 835 (22.5 percent).[27]

Table 3.12 shows the number of male science students from session 1910-1911 to 1930-1931.

TABLE 3.12. UNIVERSITY OF GLASGOW. MALE STUDENT ENROLMENT FOR SCIENCE, 1910-1911 TO 1930-1931

Session	Science Faculty	Arts and Science	Science and Medicine	Science and other	Total science	Total males		Percentage total Science to total males
1910-11	431	1	nil	1	433	2 108		20.5
1911-12	425	4	2	nil	431	2 113		20.4
1912-13	448	51	20	nil	519	2 187		23.7
1913-14	509	nil	nil	nil	509	2 255		22.6
1914-15	364	44	4	nil	412	1 835		22.5
1915-16	206	17	6	nil	229	1 164		19.7
1916-17	150	1	2	1	154	909		16.9
1917-18	142	8	6	nil	156	1 049		14.9
1918-19	332	23	12	2	369	2 140		17.2
1919-20	871	50	23	1	945	3 177		29.7
1920-21	1 145	71	37	2	1 255	3 585		35.0
1921-22	1 274	67	37	6	1 384	3 635		38.1
1922-23	1 190	98	34	7	1 329	3 543		37.5
1923-24*	1 081	103	35	5	1 224	3 275	Engineering*	37.4
1924-25	411	117	48	6	582	3 069	532	36.3
1925-26	396	150	48	8	602	3 049	435	34.0
1926-27	425	147	35	5	612	3 292	391	30.5
1927-28	416	124	22	3	565	3 624	386	26.2
1928-29	370	133	38	6	547	3 803	376	24.3
1929-30	384	100	41	3	528	3 845	376	23.5
1930-31	408	70	62	2	542	3 898	353	23.0
Totals	11 378	1 379	512	58	13 327	57 555	2 849	28.1

All percentages calculated correct to the nearest decimal place.
Percentage Science/Total males includes Engineering students
* Engineering created as a separate faculty in 1923

Source: UG General Council Reports, 1903-29 ref.. DC 183/3/3
1929-39 ref. DC 183/3/4
UG Calendar 1932-33 ref SEN 10/110

In February 1892 the Universities Commission issued Ordinance No.18 empowering Scottish University Courts to make provision for the education of women, either by admitting them to the ordinary classes of the individual university or by instituting separate classes. The Council of Queen Margaret College, Glasgow, (QMC) believed its female student population would be best served by transferring its entire work to the University. The University Court and Senate resolved to exercise its power under Ordinance 18 to provide female education not by integration but by instituting mainly separate classes. The University, therefore, accepted the College's offer. In 1893

Queen Margaret College was dissolved and its funds handed over to the University Court.

Queen Margaret College, Glasgow had been established in 1877 and from its inception directed its energies towards the provision of university-level education for women. It was for this reason that incorporation within the University was viewed as a goal achieved and not failure at the loss of independence. On the other hand, its namesake, Queen Margaret College, Edinburgh had been established in 1875 as the Edinburgh School of Cookery. The Edinburgh School itself was based upon the recently opened National Training School of Cookery in South Kensington, London. This was demonstrated when, at a public meeting it was resolved:

> That in view of the great success which has attended the establishment of Schools of Cookery in London and elsewhere, and of the fact that School Boards are introducing instruction into Girls' Schools, it is desirable that some means should be provided in Edinburgh for acquiring a systematic knowledge of the general principles of this Art.[28]

Miss Christian E G Wright, one of the instigators for the establishment of the Edinburgh School, also visited the London School to assess the training so that she might initiate similar work in Edinburgh.[29]

The School opened in temporary classrooms 9 November 1875 with one teacher, Miss Isobel D Middleton, under the direction of an Executive Committee. The prospectus indicated that there would be lessons in Superior, Plain and Artisan Cookery, each of the three classes being held on different days.[30]

So, opening within two years of each other the two major cities of Scotland provided education for women; Edinburgh in the field of domestic science of diploma level whilst Glasgow provided university-level education, eventually within the fold of the University of Glasgow. By virtue of this arrangement QMC teachers were appointed by the University Court and in session 1892-1893 its female students were admitted matriculated students of the University. In 1935 the buildings of the College were deemed inadequate for teaching purposes and were closed. From this year all teaching

was done at Gilmorehill.[31] Following Arts and Medicine, Science was the third most popular faculty for female enrolment.

Table 3.13 shows female enrolment by faculty over the period 1910-11 to 1930-1931.

TABLE 3.13. UNIVERSITY OF GLASGOW. FEMALE STUDENT ENROLMENT BY FACULTY, 1910-1911 TO 1930-1931

Session	Arts	Science	Medicine	Law	Others	Total
1910-11	552	33	78	1	18	682
1911-12	547	39	82	2	11	681
1912-13	502	44	87	1	14	648
1913-14	499	39	109	nil	15	662
1914-15	447	37	137	nil	14	635
1915-16	404	35	208	2	9	658
1916-17	396	45	304	3	5	753
1917-18	385	43	414	3	27	872
1918-19	384	67	471	4	29	955
1919-20	446	93	464	6	18	1 027
1920-21	544	115	439	5	39	1 142
1921-22	651	120	397	7	46	1 221
1922-23	837	155	316	10	35	1 353
1923-24	964	158	241	11	45	1 419
1924-25	1 059	249	174	12	35	1 529
1925-26	1 124	134	125	14	43	1 440
1926-27	1 186	129	100	20	54	1 489
1927-28	1 381	143	88	17	41	1 670
1928-29	1 414	123	95	25	36	1 693
1929-30	1 424	100	97	24	37	1 682
1930-31	1 375	106	93	17	42	1 633
Totals	16 521	2 007	4 519	184	613	23 844
Average percent	69	8	19	1	3	100

All percentages calculated and rounded correct to the nearest whole number
Source: UG Calendars for sessions shown.

Table 3.13 shows that over the period 1910-1911 to 1930-1931 the Faculty of Arts had an average of 69 percent of the female student population. The next most popular Faculty was Medicine with 19 percent followed by Science with 8 percent.

Male science students were 7 percent of the male student population in session 1894-1895. Over the period 1910-1911 to 1930-1931 the average was 28 percent, a growth

rate of factor 4. The corresponding figures for the females were 1 percent and 10.1 percent, giving a growth rate of factor 10, or two and a half times that achieved by the males.[32] Table 3.14 shows the number of female students enrolled in the Faculty of Science and for Science subjects in the University.

TABLE 3.14. UNIVERSITY OF GLASGOW, FEMALE STUDENT ENROLMENT FOR SCIENCE, 1910-1911 TO 1930-1931

Session	Science Faculty	Arts and Science	Science and Medicine	Science and Law	Total Science	Total Female	Percentage Science to total Female
1910-11	33	nil	nil	nil	33	682	4.8
1911-12	39	nil	nil	nil	39	681	5.7
1912-13	44	3	1	nil	48	648	7.4
1913-14	39	nil	nil	nil	39	662	5.9
1914-15	37	6	2	nil	45	635	7.1
1915-16	35	4	5	nil	44	658	6.7
1916-17	45	1	nil	nil	46	753	6.1
1917-18	43	6	2	nil	51	872	5.9
1918-19	67	9	4	nil	80	955	8.4
1919-20	93	14	4	nil	111	1 027	10.8
1920-21	115	21	8	nil	144	1 142	12.6
1921-22	120	25	12	nil	157	1 221	12.9
1922-23	155	21	7	nil	183	1 353	13.5
1923-24	158	24	nil	nil	182	1 419	12.8
1924-25	249	23	nil	nil	272	1 529	17.8
1925-26	143	30	4	nil	177	1 440	12.3
1926-27	129	23	24	nil	176	1 489	11.8
1927-28	143	21	10	nil	174	1 670	10.4
1928-29	123	22	1	1	147	1 693	8.7
1929-30	100	21	6	nil	127	1 682	7.6
1930-31	106	14	4	nil	124	1 633	7.6
Totals	2 016	288	94	1	2 399	23 844	10.1

Source: GU Calendars 1911-12 to 1931-32. All percentages calculated correct to the nearest decimal place.

The first students to graduate with the degree of B Sc In Engineering Science did so in 1873. In this year there were two graduates. Table 3.15 shows the number of male non-medical science qualifications gained from session 1910-1911 to 1930-1931.

TABLE 3.15. UNIVERSITY OF GLASGOW. MALE NON-MEDICAL SCIENCE QUALIFICATIONS GAINED 1910-1911 TO 1930-1931

Session	Cert. of Profic. Eng'g	B. Sc Eng'g Science	B. Sc. Pure Science	B. Sc. Applied Chem.	B.Sc. Archi-tecture	B. Sc. Agric-ulture	Ph.D.	D. Sc.	Total
1910-11	11	50	nil	nil	nil	nil	nil	7	68
1911-12	13	59	nil	nil	nil	nil	nil	6	78
1912-13	27	66	nil	nil	nil	nil	nil	4	97
1913-14	25	49	nil	nil	nil	nil	nil	3	77
1914-15	5	10	nil	nil	nil	nil	nil	6	21
1915-16	6	19	8	nil	nil	nil	nil	4	37
1916-17	2	10	5	nil	nil	nil	nil	5	22
1917-18	5	8	4	nil	nil	nil	nil	1	18
1918-19	4	29	17	nil	nil	nil	nil	7	57
1919-20	nil	50	31	nil	nil	nil	nil	5	86
1920-21	1	72	35	nil	nil	nil	1	5	114
1921-22	5	129	41	38	nil	nil	nil	2	215
1922-23	6	138	59	54	nil	nil	7	3	267
1923-24	2	112	47	49	nil	nil	9	4	223
1924-25	5	137	41	30	nil	nil	17	5	235
1925-26	6	93	36	24	1	nil	18	2	180
1926-27	3	67	36	8	nil	2	19	3	138
1927-28	2	54	41	5	nil	2	7	5	116
1928-29	1	39	41	15	1	1	19	2	119
1929-30	nil	37	30	12	1	nil	18	4	102
1930-31	2	32	49	6	3	1	nil	7	100
Totals	131	1 260	521	241	6	6	115	90	2 370

Source: UG Calendars for sessions shown.

Note: The first B.Sc. degree examinations in Architecture were held in session 1925-26 and in Agriculture in session 1926-27.
The Ph.D qualification is not solely a science subject.

The majority of those students gaining the Certificate of Proficiency in Engineering Science did so during the time they were studying for the B Sc degree in Engineering Science. Consequently, most of the students who were awarded the B Sc degree were also awarded the Certificate of Proficiency.[33]

The steady increase in the number of degrees in Engineering Science awarded from the start of the twentieth century was due in a large part to the increase in foreign students. For instance, in academic session 1911-1912 out of the 59 B Sc degrees awarded, 20 of them (34 percent) went to overseas students.[34]

Table 3.16 shows the female non-medical science qualifications gained over the period 1910-1911 to 1930-1931 and Table 3.17 shows total degrees awarded by faculty over the same period.

TABLE 3.16. UNIVERSITY OF GLASGOW. FEMALE NON-MEDICAL SCIENCE QUALIFICATIONS GAINED 1910-1911 TO 1930-1931

Session	B Sc Pure Science	B Sc Applied Chemistry	B Sc Architecture	Ph D	D Sc	Totals
1910-11	2	nil	nil	nil	1	3
1911-12	2	nil	nil	nil	nil	2
1912-13	6	nil	nil	nil	1	7
1913-14	7	nil	nil	nil	2	9
1914-15	14	nil	nil	nil	nil	14
1915-16	11	nil	nil	nil	nil	11
1916-17	8	nil	nil	nil	1	9
1917-18	5	nil	nil	nil	nil	5
1918-19	17	nil	nil	nil	nil	17
1919-20	4	nil	nil	nil	nil	4
1920-21	13	nil	nil	1	nil	14
1921-22	21	1	nil	nil	nil	22
1922-23	25	2	nil	nil	nil	27
1923-24	22	6	nil	nil	nil	28
1924-25	22	2	nil	2	nil	26
1925-26	14	2	nil	nil	nil	16
1926-27	9	nil	nil	1	nil	10
1927-28	8	3	nil	1	nil	12
1928-29	11	1	1	1	nil	14
1929-30	12	nil	2	1	nil	15
1930-31	nil	nil	nil	nil	nil	nil
Totals	233	17	3	7	5	265

Source: UG Calendars for sessions shown

Note: The first Ph D degree was awarded in 1921. Although not exclusively a Science qualification, the female passes in these degrees have been included.
The first degrees in Applied Chemistry were awarded in 1922
The first degrees in Architecture were awarded in 1926

Tables 3.14 and 3.16 reveal statistics which could indicate increasing opportunities for women in scientific employment. Table 3.14 gives the enrolments and Table 3.16 the qualification gained. The war had proved that women could more than simply cope

with life in industry, in some cases they excelled. The shortage of scientific personnel in the inter-war period, the emancipation of women and the spreading awareness of the economic advantages of employing women in preference to men, led to their increased employment where their scientific knowledge could be utilised, especially if there would be no repercussions from a trade union. The unions tended to be strongest in the area of manual skills and their influence was minimal in the laboratory environment.

Not always through choice but through the shortage of male partners, following the war more females were remaining unmarried and devoting their lives to a career; attributes greatly desired by an employer. Combined, these circumstances meant that more employers were willing to employ women in the laboratory or other science environment in preference to men.

Unlike many other industries, chemical manufacture expanded in the inter-war period and the emergence of the major petrochemical companies and Imperial Chemical Industries in 1926 increased the domestic demand for trained chemists. Successful male students, however, still continued to go abroad, especially to the United States, South Africa and Australia.[35] The resulting shortage of male science graduates led to increased job opportunities for women, especially single women, who tended not to emigrate.

As soon as the degree of B Sc in Applied Chemistry was offered women enrolled for the course and over the years many were successful. The peak year for passes was session 1923-1924 when six women obtained degrees. 17 such degrees were awarded over the period 1921-1922 to 1930-1931. From session 1910-1911 to 1930-1931, 275 science-based degrees were gained by women, an average of 13 degrees per year. The majority of these degrees, 243, were awarded for Pure Science. In the same way as a degree in Arts, the Pure Science degree was often the basic qualification leading to a post in teaching.

Other opportunities for women educated to degree level in a science subject were in textile industry laboratories related to dyestuffs, foundries and engineering establishments as metallurgists or drawing office personnel and medical research.

TABLE 3.17. UNIVERSITY OF GLASGOW. DEGREES AWARDED BY FACULTY TO MALE AND FEMALE STUDENTS 1910-1911 TO 1930-1931

Faculty	Average of five years ending 1909	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31
Arts	215	239	227	274	282	266	257	130	102	166	224	223	254	336	352	375	474	552	594	570	725	729
Law	34	25	19	28	19	15	7	5	3	19	41	26	56	46	32	42	32	37	47	55	65	53
Medicine	128	120	122	117	139	160	117	107	101	98	128	140	170	301	423	302	224	158	175	134	163	129
Divinity	20	20	18	13	14	16	7	2	2	12	18	11	10	10	10	15	13	14	18	13	16	11
Science	49	89	95	103	112	81	56	39	25	42	95	116	163	312	278	277	243	244	228	209	222	141
Engineering	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	63
Totals	446	493	481	535	566	538	444	283	233	337	506	516	653	1 005	1 095	1 011	986	1 005	1 062	981	1 191	1 126

Source: General Council Reports for years shown. UG ref. DC 183/3/3 and DC 183/3/4

An examination of Table 3.17 indicates that apart from session 1923-1924 the Faculty of Arts always awarded more degrees than the other four faculties. In this example the Faculty of Engineering is not included. Until session 1921-1922 the Faculty of Medicine was second in the award of degrees. From session 1925-1926 until the end of the period under review, the Faculty of Medicine was always behind the Faculty of Science in the number of degrees awarded. These statistics demonstrate the growing importance of science in Scotland and other parts of the world when from session 1925-1926 the Faculty of Science was second only to the Faculty of Arts in the number of degrees awarded.

The Royal Technical College was not a degree-awarding establishment and its graduating students were usually awarded a degree by way of its affiliation with the University of Glasgow. The University did not award diplomas but The Royal Technical College did. The College's Associateship had long been recognised by the University as being equivalent in part to its own B Sc in various disciplines. The University of St. Andrews was another university which did not award diplomas and Edinburgh had only 13 first year matriculated diploma students.

Extending the examination of the first full post-war session, further Tables have been compiled giving various details of the student population of the universities of Scotland. The Tables include information concerning full and part-time students, degrees and diplomas gained according to faculty and the amount of annual grant received from the Treasury. The size of this grant was determined mainly by student numbers; the larger the student population, the larger the grant.

TABLE 3.18. DETAILS OF SCOTTISH UNIVERSITY STUDENTS 1919-1920

	FULL-TIME STUDENTS										PART-TIME STUDENTS											
	Research		Post-graduate		Degree		Diploma		Total		Research		Post-graduate		Degree		Diploma		Occasional		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	nil	1	nil	nil	982	483	153	19	1 135	503	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Edinburgh	18	2	24	10	3 035	1 066	27	nil	3 104	1 078	10	1	nil	nil	nil	nil	nil	nil	234	63	244	64
Glasgow	4	1	5	5	2 764	1 029	nil	nil	2 773	1 035	3	1	nil	nil	nil	nil	nil	nil	20	20	23	21
TRTCG	1	1	nil	nil	338	5	222	nil	561	6	nil	nil	nil	nil	nil	nil	255	nil	2 716	76	2 971	76
St.Andrews and Dundee	13	8	42	37	392	221	46*	38*	493	304	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil	nil
Totals	36	13	71	52	7 511	2 804	448	57	8 066	2 926	13	2	nil	nil	nil	nil	255	nil	2 970	159	3 238	161

Note: * Taking courses of university standard not leading to a degree.

SOURCE: University Grants Committee Returns for session 1919-1920, pp.7-8

TABLE 3.19. DETAILS OF SCOTTISH UNIVERSITY STUDENTS 1924-1925

	FULL-TIME STUDENTS								PART-TIME STUDENTS									
	Research		First Degrees		Diploma		Total		Research		Degrees		Diploma		Occasional		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	20	4	780	526	33	11	833	541	nil	nil	nil	nil	nil	nil	20	nil	20	nil
Edinburgh	94	20	2 113	1 024	33	42	2 240	1 086	16	2	nil	nil	3	1	404	108	423	111
Glasgow	10	5	2 640	1 400	5	4	2 655	1 409	84	2	nil	nil	nil	nil	172	12	256	14
TRTCG	35	nil	160	6	181	16	376	22	12	nil	70	2	362	44	2 134	31	2 578	77
St.Andrews and Dundee	40	12	276	262	18	nil	334	274	nil	nil	nil	nil	3	2	35	5	38	7
Totals	199	41	5 969	3 218	270	73	6 438	3 332	112	4	70	2	368	47	2 765	156	3 315	209

Source: University Grants Committee Returns 1924-1925 pp.8-9

TABLE 3.20. DETAILS OF SCOTTISH UNIVERSITY STUDENTS 1930-1931

	FULL-TIME STUDENTS								PART-TIME STUDENTS									
	Research		First Degrees		Diploma		Total		Research		Degrees		Diploma		Occasional		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	24	7	753	402	49	8	826	417	10	1	nil	nil	nil	nil	51	9	61	10
Edinburgh	115	16	2 376	1 096	50	72	2 541	1 184	73	8	nil	nil	23	1	486	52	582	61
Glasgow	20	5	3 373	1 591	32	5	3 425	1 601	72	6	nil	nil	nil	nil	284	18	356	24
TRTCG	12	1	117	8	198	21	327	30	22	1	30	1	357	25	1 808	34	2 217	61
St.Andrews and Dundee	25	12	455	288	15	4	495	304	18	4	nil	nil	22	32	42	14	82	50
Totals	196	41	7 074	3 385	344	110	7 614	3 536	195	20	30	1	402	58	2 671	127	3 298	206

Source: UGCR 1930-1931 pp.12-13

Table 3.18 shows that in session 1919-1920 the University of Edinburgh, with 20 full-time and 11 part-time students, had the largest number participating in research work. St.Andrews and Dundee with 21 full-time and no part-timers followed Edinburgh. Glasgow had a total of nine research students. Eight of the St.Andrews researchers were women whilst Edinburgh had two.

St. Andrews and Dundee had the largest number of full-time post-graduate students. These totalled 79 male and female students compared with 34 for Edinburgh and 10 for Glasgow. Neither Aberdeen nor TRTCG had any full or part-time post-graduate students. None of the five establishments listed had any students following either part-time degree or post-graduate courses.

A comparison of Table 3.19 with 3.18 shows clearly that overall there was a significant fall of 1 222 full-time students in session 1924-1925. The decline was due entirely to the fall in male attendees. Overall, male full-time students fell by 1 628 whilst female numbers rose by 406. The fall in male numbers was due to the graduation of ex-servicemen after they had completed their degrees under the Government's assisted places scheme.

The rise in female students appears to result from the increased freedom now claimed by them following the war and the desire and opportunity to partake in higher education. Moreover, the decline in the availability of male partners reduced the prospect of marriage for women following the carnage of 1914-1918. This situation could also have induced women to attend university in order to achieve the means, via a degree, to provide financially for their own future.

Table 3.20 shows that the trend of increased female attendance at university continued to 1930-1931. In this session a total of 3 536 women attended full-time and 206 part-time. By 1930-1931 the decline in men attending university full-time had been halted. In this session there was a total of 7 614 compared with 6 438 in 1924-1925 and 8 066 in 1919-1920. The statistics for part-time attendance remained remarkably steady in the post-war period for both sexes as revealed by a comparison of Tables 3.18; 3.19 and 3.20.

The majority of Glasgow research students in session 1924-1925 were following a part-time course, indicating that they probably had full-time paid employment in the vicinity and attended university in their spare time in order to further their qualifications. Glasgow had by far the greatest number of full-time students whilst The Royal Technical College had the greatest number of part-time students.

In session 1930-1931 the two Glasgow institutions combined catered for 48 percent of the full-time students in attendance at Scottish establishments providing higher education and an outstanding 76 percent of all part-time students.[36] The shortage of trained scientists throughout the country and the awareness that Glasgow could provide the necessary scientific and technical education to help overcome the problem is reflected in these statistics.

By session 1924-1925 statistics were available showing male and female enrolments by faculty in each of the four Scottish universities and The Royal Technical College. In this session the British totals were also given and these have been included in Table 3.21.

TABLE 3.21. SCOTTISH FULL-TIME STUDENTS ARRANGED UNDER FACULTIES 1924-1925

	ARTS			PURE SCIENCE			MEDICINE AND DENTISTRY			TECHNOLOGY			AGRICULTURE			GRAND TOTALS		
University	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
Aberdeen	396	436	832	84	58	142	280	38	318	2	nil	2	71	9	80	833	541	1 374
Edinburgh	838	858	1 696	180	55	235	929	171	1 100	200	nil	200	93	2	95	2 240	1 086	3 326
Glasgow	1 017	1 086	2 103	285	133	418	820	182	1 002	501	3	504	32	5	37	2 655	1 409	4 064
TRTCG	nil	nil	nil	26	14	40	nil	nil	nil	350	8	358	nil	nil	nil	376	22	398
St.Andrews and Dundee	92	174	266	94	60	154	115	40	155	33	nil	33	nil	nil	nil	334	274	608
Total Scotland	2 343	2 554	4 897	669	320	989	2 144	431	2 575	1 086	11	1 097	196	16	212	6 438	3 332	9 770
Total Britain	10 950	8 941	19 891	5 165	2 164	7 329	7 896	1 631	9 527	4 156	49	4 205	746	96	842	28 913	12 881	41 794
Percentage Scotland to Britain	21.4	28.6	24.6	13.0	14.8	13.5	27.2	26.4	27.0	26.1	22.4	26.1	26.3	16.7	25.2	22.3	25.9	23.4
Percentage Glasgow to Scotland	43.4	42.5	43.0	42.6	41.6	42.3	38.2	42.2	39.0	46.1	27.3	46.0	16.3	31.3	17.5	41.2	42.3	41.6
Percentage Glasgow to Britain	9.3	12.2	10.6	5.5	6.1	5.7	10.4	11.2	10.5	12.1	6.1	12.0	4.3	5.2	4.4	9.2	11.0	9.7

Source: University Grants Committee Returns 1924-1925 pp.10-11. All percentages calculated correct to nearest decimal place

TABLE 3.22. SCOTTISH FULL-TIME STUDENTS ARRANGED UNDER FACULTIES 1930-1931

	ARTS			PURE SCIENCE			MEDICINE AND DENTISTRY			TECHNOLOGY			AGRICULTURE			GRAND TOTALS		
	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL	M	F	TOTAL
Aberdeen	325	347	672	104	33	137	289	28	317	43	nil	43	65	9	74	826	417	1 243
Edinburgh	1 048	980	2 028	182	67	249	1 021	136	1 157	158	nil	158	132	1	133	2 541	1 184	3 725
Glasgow	1 942	1 403	3 345	336	93	429	818	99	917	301	3	304	28	3	31	3 425	1 601	5 026
TRTCG	nil	nil	nil	99	23	122	nil	nil	nil	228	7	235	nil	nil	nil	327	30	357
St.Andrews and Dundee	179	239	418	131	45	176	166	20	186	19	nil	19	nil	nil	nil	495	304	799
Total Scotland	3 494	2 969	6 463	852	261	1 113	2 294	283	2 577	749	10	759	225	13	238	7 614	3 536	11 150
Percentage Glasgow to Scotland	55.6	47.3	51.8	39.4	35.6	38.5	35.7	35.0	35.6	40.2	30.0	40.0	12.4	23.1	13.0	45.0	45.3	45.1

Source: UGCR 1930-1931 pp.14-15. All percentages calculated correct to the nearest decimal place

A comparison of Tables 3.21 and 3.22 reveals that in Arts, within Scotland, Glasgow increased its total number of students from 43 percent in session 1924-1925 to almost 52 percent in session 1930-1931. The increase had occurred in both the male and female numbers. In each of the other faculties the University had seen a decrease in its percentage share of the Scottish university students. The Royal Technical College showed an increase in the number of students following Pure Science courses but also showed a fall in the number of Technology students.

Overall, Aberdeen's share of the Scottish student population declined from 14 percent in 1924-1925 to 11 percent in 1930-1931. The shares of Edinburgh, St.Andrews and Dundee and The Royal Technical College remained virtually the same over the period. Glasgow's share rose from 42 percent to 45 percent, the increase being wholly in the Faculty of Arts.[37]

In session 1924-1925 Aberdeen had two students following Technology courses and this had risen to 43 in 1930-1931. All the remaining institutions registered a drop in this branch of study. Apparently the slump of the 1930's was taking hold and the decreased job opportunities in industry led to fewer opportunities for the young graduate; hence the fall in student numbers in science and technology.

Tables 3.23 and 3.24 have been constructed to give information concerning the type of degree and in which faculty it was gained by the post-war students. It must be borne in mind that some of these students would have matriculated in session 1917-1918 in order to have gained a three year ordinary degree commencing with the first year. Many of the students graduating in session 1919-1920 would not have commenced in the first year but in the second or subsequent years. Later tables will give information for the benchmark sessions of 1924-1925 and 1930-1931. These sessions correspond to the intermediate and final post-war sessions which are covered by this thesis.

TABLE 3.23. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES IN SESSION 1919-1920

	Honours Degree		Ordinary Degree		Higher Degree		Total		First Diploma		Higher Diploma		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	17	16	98	70	10	1	125	87	5	1	25	9	30	10
Edinburgh	17	23	290	100	53	4	360	127	nil	nil	21	7	21	7
Glasgow	98	46	199	94	32	2	329	142	nil	nil	nil	nil	nil	nil
TRTCG	39	2	nil	nil	nil	nil	39	2	123	1	1	nil	124	1
St.Andrews and Dundee	7	10	43	32	10	2	60	44	8	1	nil	nil	8	1
Totals	178	97	630	296	105	9	913	402	136	3	47	16	183	19
Percentage Glasgow to Totals	55.1	47.4	31.6	31.8	30.5	22.2	36.0	35.3	nil	nil	nil	nil	nil	nil

All percentages calculated correct to nearest decimal place
Source: University Grants Committee Returns for session 1919-1920, p.11

TABLE 3.24. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES IN SESSION 1924-1925

	Honours Degree		Ordinary Degree		Higher Degree		Total		First Diploma		Higher Diploma		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	38	17	177	136	12	nil	227	153	7	4	nil	nil	7	4
Edinburgh	67	44	434	213	66	10	567	267	13	35	1	nil	14	35
Glasgow	299	76	412	282	39	2	750	360	1	nil	nil	nil	1	nil
TRTCG	93	3	3	nil	6	nil	102	3	198	13	24	nil	222	13
St.Andrews and Dundee	12	17	75	69	15	5	102	91	10	4	nil	nil	10	4
Totals	509	157	1 101	700	138	17	1 748	874	229	56	25	nil	254	56
Percentage Glasgow to Totals	58.7	48.4	37.4	40.3	28.3	11.8	42.9	41.2	0.4	nil	nil	nil	0.4	nil

All percentages calculated correct to nearest decimal place
Source: University Grants Committee Returns for session 1924-1925, p.12

TABLE 3.25. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES IN SESSION 1930-1931

	Honours Degree		Ordinary Degree		Higher Degree		Total		First Diploma		Higher Diploma		Total	
University	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Aberdeen	43	21	140	82	14	2	197	105	8	1	nil	nil	8	1
Edinburgh	105	61	357	176	66	9	528	246	46	48	nil	nil	46	48
Glasgow & TRTCG	215	54	445	348	48	9	708	411						
Glasgow	-	-	-	-	-	-	-	-	12	5	nil	nil	12	5
TRTCG	-	-	-	-	-	-	-	-	232	18	19	nil	251	18
St.Andrews and Dundee	31	17	79	68	11	3	121	88	17	12	nil	nil	17	12
Totals	394	153	1 021	674	139	23	1 554	850	315	84	19	nil	334	84
Percentage Glasgow to Totals	54.6	35.3	43.6	51.6	34.5	39.1	45.6	48.4	3.8	6.0	nil	nil	3.6	6.0

All percentages calculated correct to nearest decimal place.

Note: The percentage of degrees gained is the University of Glasgow and TRTCG combined. The UGCR did not differentiate the degree totals for the two institutions in this session.
Source: UGCR 1930-1931 p. 16

Interestingly, by 1930-1931 The Royal Technical College and the University of Glasgow statistics relating to first and higher degrees were combined. The statistics relating to diplomas were still registered separately for each of the two institutions.

Table 3.23 above shows 1 315 first and higher degrees were awarded by the universities of Scotland during session 1919-1920, composed of 913 awarded to men and 402 to women. A total of 183 diplomas were awarded to men, with TRTCG claiming 124, and 19 to women. Glasgow's share of awards was significant with 36 percent of the male degrees and 35 percent of all female degrees granted. Edinburgh's equivalent share was 39 percent for men and 32 percent for women.

When considering higher degrees, Edinburgh had over 50 percent of the male degrees awarded and 44 percent of the female higher degrees. Glasgow's equivalent was 30

percent for males and 22 percent for females.[38] Glasgow did not award diplomas. The Royal College had the overwhelming share of all diplomas awarded in Scotland with approximately 90 percent of all first diplomas. The Royal College's share of male higher diplomas in session 1919-1920 was only two percent. The remainder went to students of Aberdeen, 53 percent and Edinburgh, 45 percent.[39]

During session 1924-1925 the total number of first and higher degrees awarded in Scotland doubled over the 1919-1920 figure to 2 622. Compared with Scotland, Glasgow's share of these successes was 43.5 percent of all degrees awarded to males and 41.2 percent of those awarded to females. In a British context Glasgow awarded nine percent of all degrees to male graduates and 10.8 percent to the females.[40] By 1930-1931, after the bulk of ex-servicemen had passed through the system, the total number of degrees awarded in Scotland had fallen to 2 404.

The number of diplomas gained by students in Scotland continued to rise. 202 were awarded in 1919-1920 and this rose through 310 in 1924-1925 to 418 in 1930-1931. The Royal Technical College was the largest awarder of diplomas in Scotland. As the Tables disclose, the College never awarded less than 61 percent of all diplomas granted in Scotland for the years discussed.[41]

It is also important to examine in which faculty the awards were made. This gives an insight into which areas of the Scottish economy the students were finding employment. Admittedly not all students were destined to be employed in Scotland but the majority were. In order to clarify in which departments Scottish students were qualifying, Tables 3.26; 3.27 and 3.28 have been constructed.

TABLE 3.26. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES ACCORDING TO FACULTY 1919-1920

	ARTS		PURE SCIENCE		MEDICINE & DENTISTRY		TECHNOLOGY		AGRIC.		TOTALS	
University	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.
Aberdeen	140	nil	19	nil	45	34	nil	nil	8	6	212	40
Edinburgh	201	14	89	4	197	10	nil	nil	nil	nil	487	28
Glasgow	247	nil	96	nil	128	nil	nil	nil	nil	nil	471	nil
TRTCG	nil	nil	1	5	nil	nil	40	120	nil	nil	41	125
St.Andrews and Dundee	60	nil	33	nil	11	9	nil	nil	nil	nil	104	9
Totals	648	14	238	9	381	53	40	120	8	6	1 315	202
Percentage Glasgow to Totals	38.1	nil	40.3	nil	33.6	nil	nil	nil	nil	nil	35.8	nil

All percentages calculated correct to nearest decimal place.

NOTE: ARTS includes Fine Art; Theology; Law; Music; Commerce; Economics and Education
TECHNOLOGY includes Engineering; Applied Chemistry; Mining; Metallurgy; Architecture 'etc.'
AGRICULTURE includes Forestry; Horticulture; Dairy Work.

Source: UGCR 1919-1920 p.12

TABLE 3.27. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES ACCORDING TO FACULTY 1924-1925

	ARTS		PURE SCIENCE		MEDICINE & DENTISTRY		TECHNOLOGY		AGRIC.		TOTALS	
University	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.
Aberdeen	228	nil	35	nil	104	6	nil	nil	13	5	380	11
Edinburgh	370	40	69	nil	302	6	55	1	38	2	834	49
Glasgow	398	nil	113	nil	418	1	169	nil	12	nil	1 110	1
TRTCG	nil	nil	4	61	nil	nil	101	174	nil	nil	105	235
St.Andrews and Dundee	70	nil	42	nil	71	14	10	nil	nil	nil	193	14
Totals	1 066	40	263	61	895	27	335	175	63	7	2 622	310
Percentage Glasgow to Totals	37.3	nil	43.0	nil	46.7	3.7	50.4	nil	19.1	nil	42.3	0.3

All percentages calculated correct to nearest decimal place.
Source: UGCR 1924-1925 p.13

TABLE 3.28. DEGREES AND DIPLOMAS GAINED BY STUDENTS OF THE SCOTTISH UNIVERSITIES ACCORDING TO FACULTY 1930-1931

	ARTS		PURE SCIENCE		MEDICINE & DENTISTRY		TECHNOLOGY		AGRIC.		TOTALS	
University	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.	Deg.	Dip.
Aberdeen	195	nil	35	nil	61	8	4	nil	7	1	302	9
Edinburgh	450	68	57	nil	206	25	35	1	26	nil	774	94
Glasgow & TRTCG	780	nil	125	97	129	17	81	172	4	nil	1 119	286
St.Andrews and Dundee	123	18	47	nil	33	11	6	nil	nil	nil	209	29
Totals	1 548	86	264	97	429	61	126	173	37	1	2 404	418
Percentage Glasgow &TRTCG to Totals	50.4	nil	47.3	100	30.1	27.9	64.3	99.4	10.8	nil	46.5	68.4

All percentages calculated correct to nearest decimal place.
Source: UGCR 1930-1931 p.13

Tables 3.26; 3.27 and 3.28 detail the faculties in which the degrees and diplomas were awarded. It is clear that the degrees and diplomas awarded for Arts subjects increased in each case. In session 1930-1931 the Scottish universities and TRTCG combined produced only 126 degrees and 173 diplomas in the Technology group of subjects. The comparable figures for 1924-1925 had been 335 degrees and 175 diplomas and for 1919-1920, 40 degrees and 120 diplomas. This indicates a reduction in the demand for holders of these qualifications. However, despite the reduction in this type of qualification, the industrialised base of Glasgow and district and the area's pre-eminence in technological studies is reflected in the share of Technology degrees and diplomas gained by University of Glasgow and Royal Technical College students.

In session 1919-1920 all the technological degrees and diplomas were gained by The Royal Technical College. By session 1924-1925, as revealed by Table 3.27, the University of Glasgow had over 50 percent of all Technological degrees awarded in Scotland and The Royal Technical College had 30 percent. Combined these two institutions accounted for over 80 percent of all technological degrees awarded in Scotland and 29 percent of the British total.

The Royal Technical College had a monopoly of the diploma market awarding virtually all the Scottish technology diplomas and 29 percent of the British diplomas in 1924-1925. The session 1924-1925 statistics reveal the boost given to the number of degrees and diplomas awarded by the graduation of returning service personnel on Government assisted places.

By session 1930-1931 the number of full-time students attending universities and colleges in Britain which received a Treasury Grant was 47 587. Of these 2 237 were engaged in research or other advanced work; 36 886 were enrolled for a first degree whilst 8 464 were working towards a diploma. 33 569 of the total full-time students were studying in England; 2 868 Wales and 11 150 in Scottish universities. Male full-time students were 34 629, or 72.8 percent of the total whilst females numbered 12 958 or 27.2 percent.[42]

In addition to full-time students there was a substantial number following part-time courses. Part-timers numbered 14 725 with 6 445 of these doing advanced work; first degree or diploma courses. Another 8 280 were classed as 'occasional' students taking one or more courses of lectures or laboratory instruction of university standard by university teachers but not leading to a degree or diploma. 5 632 of the part-timers doing advanced; first degree or diploma work were studying in England; 107 in Wales and 706 in Scottish universities.[43]

The University Grants Committee Returns for session 1924-1925 commented that overall in Britain there had been a decrease in full-time students of both sexes compared with 1923-1924. The numbers had decreased from 42 892 to 41 794 and the total decrease of 1 098 had been mainly in the male student population. There had been a fall of 1 039 men and 59 women.

This male decrease was not at the time considered to be serious because there had been an overall decrease of 1 458 in the number of men students assisted under the Government scheme for the higher education of ex-servicemen. In 1923-1924 there had been 1 721 in attendance and this number had dropped to 263 in session 1924-1925. It was thought that by the end of the year the ex-servicemen factor which had for some years distorted the statistics would have disappeared. There had been a steady decline in the number of such students since the high water mark of 1920-1921.[44]

Overall the main decrease in male student numbers had been Medicine, 970 and Technology 496. For females the main loss had also been in the Faculty of Medicine with a drop of 367 students. There had been little change in male and female numbers in Pure Science and Agriculture whilst Arts had shown an increase of 557 males and 353 females. The Report continued:

> The decrease in students of Medicine, as distinguished from Dentistry, was most marked in the Scottish Medical Schools, where there were 537 fewer men and 178 fewer women last year than in the year before.[45]

Throughout Britain there had been a fall in Engineering students from 3 413 in 1923-1924 to 3 036 in 1924-1925; in Metallurgy from 187 to 140 and in Applied Chemistry from 338 to 280. Students of Architecture were virtually unchanged at about 200 whilst in Mining there had been a slight increase from 263 to 275.[46]

The information presented in Table 3.26 shows, by calculation, that 49 percent of all degrees awarded were in the Faculties of Art with University of Glasgow students gaining 38 percent of these, Edinburgh 31 percent and Aberdeen 22 percent. The remainder went to St. Andrews. The major allocation of degrees within the Faculties of Arts is not surprising when the wide range of subjects encompassed by this Faculty is examined. Arts subjects were an integral of many degrees outwith the Faculty of Arts. For example, Law and Theology, to mention only two, had Arts components.[47]

Medicine and dentistry accounted for 29 percent of all degrees awarded and 26 percent of all diplomas. The University of Glasgow awarded 34 percent of medical degrees whilst the figure for Edinburgh was 52 percent and 19 percent of diplomas. Pure Science was the third most popular degree subject with 18 percent of the total. The University of Glasgow students accounted for 40 percent of such degrees and Edinburgh 37 percent.[48]

The following year was to see an increase in the total number of degrees awarded from 1 315 in 1919-1920 to 1 560 in 1920-1921. This represented a 19 percent increase. Diplomas awarded rose from 202 to 233, a 15 percent increase over the same period.[49] During 1920-1921 session Aberdeen lost its monopoly of degrees in Agriculture. Both Edinburgh and Glasgow granted these degrees and the number gained rose from 8 to 76, an increase of 850 percent. In 1921 Edinburgh awarded 57 degrees in agriculture, Aberdeen 15 and Glasgow 4.[50]

The next largest increase was in Technology degrees with 373 percent. The number awarded rose from 40 in 1919-1920 to 189 in 1920-1921. In 1919-1920 The Royal College had been the only institution to grant such degrees with 40. In 1921 the College had slipped to third place with 47 degrees; behind Glasgow with 86 recipients and Edinburgh 56. Over this same period degrees in Medicine increased by 17 percent,

Arts 3 percent whilst degrees in Pure Science showed a 23 percent drop from 238 in 1919-1920 session to 184 in session 1920-1921.[51]

Following the war the Treasury made substantial increases in the grants it paid to the universities of Scotland. Annual and special non-recurrent grants were made to all approved institutions in varying amounts, dependent mainly upon student numbers but other extenuating circumstances were taken into consideration, especially for the non-recurrent grants.

This increasing generosity on the part of the Government was, of course, a direct result of the War. The Government had come to realise that the universities were not simply places for those who could afford it to while away three or four years of their young lives. Through the medium of the Treasury it decided to make amends.

Universities were a storehouse of academic, scientific and technical expertise, coupled with workshops and other facilities, which could be drawn upon in times of national crisis such as the Great War. Grants were not only a way of saying 'thank you' but also of building up and nurturing these human and material assets.

Table 3.29 shows annual grants paid to the Scottish universities and The Royal Technical College for the financial and academic years 1919-1920 and 1920-1921. For comparison, the pre-war years have also been included. Because of the differences between a financial year and the academic year, from 1920-1921 the Grants Committee decided that it would be more convenient to the universities if it paid grants in respect of an academic year, instead of the Governmental financial year, which embraced, in part, two succeeding academic years. Table 3.29 shows the grants for 1919-1920 for both the financial and academic year. Succeeding grants were shown in terms of the academic year only.[52]

TABLE 3.29. ANNUAL GRANTS PAID TO SCOTTISH UNIVERSITIES 1913-1914 TO 1920-1921, £ STERLING

	FINANCIAL YEAR		ACADEMIC YEAR	
University	1913-14 to 1918-19	1919-1920	1919-1920	1920-1921
Aberdeen	17 400	32 000	32 000	35 000
Edinburgh	27 620	53 000	53 000	58 000
Glasgow	24 680	48 000	48 000	51 000
TRTCG	nil	3 000	3 000	4 000
St. Andrews and Dundee	15 300	29 000	29 000	32 000
Total	85 000	165 000	165 000	180 000

Source: University Grants Committee Returns for session 1920-21 p. 24

In addition to these annual grants special non-recurrent grants were also paid by the Grants Committee. These are detailed in Table 3.30 and do not include any grants which may have been paid by the Ministries of Agriculture and Fisheries and the Board of Education.

TABLE 3.30. SPECIAL NON-RECURRENT GRANTS PAID TO SCOTTISH UNIVERSITIES 1915-1916 TO 1920-1921, £ STERLING

	FINANCIAL YEAR			ACADEMIC YEAR	
University	1915-1916	1918-1919	1919-1920	1919-1920	1920-1921
Aberdeen	5 000	nil	9 000	12 500	7 000
Edinburgh	14 500	6 500	20 000	25 000	13 000
Glasgow	9 500	nil	21 000	23 500	11 000
TRTCG	nil	nil	6 000	7 000	4 000
St. Andrews and Dundee	2 500	nil	4 500	7 250	5 000
Total	31 500	6 500	60 500	75 250	40 000

Source: University Grants Committee Returns for session 1920-1921 p. 25

TABLE 3.31. TREASURY GRANTS PAID TO UNIVERSITIES AND UNIVERSITY COLLEGES 1924-1925 TO 1930-1931, £ STERLING

	RECURRENT GRANTS			NON-RECURRENT GRANTS			
Country	1924-1925	1929-1930	1930-1931	1926-1927	1927-1928	1928-1929	1929-1930
England	922 495	1 167 390	1 352 600	80 500	44 000	nil	74 250
Wales	95 500	116 000	139 000	4 000	8 250	500	13 500
Aberdeen	41 000	48 000	55 000	nil	nil	nil	2 000
Edinburgh	70 000	83 000	95 000	6 500	nil	nil	5 000
Glasgow	63 000	76 000	88 000	nil	nil	nil	2 500
TRTCG	8 000	14 500	16 250	nil	nil	nil	nil
St. Andrews and Dundee	38 000	45 000	52 500	12 000	3 000	nil	2 000
Total Scotland	220 000	266 500	306 750	18 500	3 000	nil	11 500
Total Britain	1 237 995	1 549 890	1 798 350	103 000	55 250	500	99 250
Percentage of grants paid to Scotland	17.8	17.2	17.1	18.0	5.4	nil	11.6

Percentages calculated correct to nearest decimal place
Source: UGCR 1930-31 p.26

THE ROYAL TECHNICAL COLLEGE

The concluding part of this chapter deals with students of the University's affiliated College, The Royal Technical College. An insight will be given almost exclusively into the male population as the college was predominantly populated by male evening class students. Table 3.32 details the male day and evening class students from session 1910-1911 to 1930-1931.

TABLE 3.32. THE ROYAL TECHNICAL COLLEGE, GLASGOW MALE DAY AND EVENING CLASS STUDENTS 1910-1911 TO 1930-1931

Session	Evening	Percentage Change	Day	Percentage Change	Student Totals	Percentage Change
1910-11	4 977	nil	560	nil	5557	nil
1911-12	4 484	- 9.9	572	+ 2.1	5056	- 9.0
1912-13	4 276	- 4.6	610	+ 6.6	4886	- 3.4
1913-14	4 203	- 1.7	669	+ 9.7	4872	- 0.3
1914-15	2 583	- 38.5	445	- 33.5	3028	- 37.9
1915-16	2 115	- 18.1	409	- 8.1	2524	- 16.6
1916-17	2 134	+ 0.9	453	+ 10.8	2587	- 2.5
1917-18	2 495	+ 16.9	662	+ 46.1	3157	- 22.0
1918-19	2 178	- 12.7	981	+ 48.2	3159	+ 0.1
1919-20	4 555	+ 109.1	1135	+ 15.7	5690	+ 80.1
1920-21	4 356	- 4.4	1290	+ 13.7	5646	- 0.8
1921-22	3 969	- 8.9	1203	- 6.7	5172	- 8.4
1922-23	3 812	- 4.0	1160	- 3.6	4972	- 3.9
1923-24	3 810	- 0.1	1006	- 13.3	4816	- 3.1
1924-25	3 817	- 0.2	936	- 7.0	4753	- 1.3
1925-26	3 254	- 14.8	895	- 4.4	4149	- 12.7
1926-27	3 235	- 0.6	934	+ 4.4	4169	+ 0.5
1927-28	3 238	+ 0.1	931	- 0.3	4169	no change
1928-29	2 939	- 9.2	967	+ 3.9	3906	- 6.3
1929-30	2 949	+ 0.3	1008	+ 4.2	3957	+ 1.3
1930-31	2 880	- 2.3	903	- 10.4	3783	- 4.4
Totals	72 259	- 42.1	17 729	+ 61.3	90 008	- 31.9

Percentages calculated correct to nearest decimal place

Source: Annual Reports to 1932

Perhaps the most outstanding feature of the student composition was the large number of male students compared with the female numbers. This may be explained by the type of courses offered by the College. From its establishment in 1886 it had been decided

that only technical and scientific courses of a practical nature would be offered. And it was the male population who were generally the ones employed in this category of work.

There were 137 women enrolled in the College for evening classes during session 1914-1915 and of these 58 were teachers, 25 warehousewomen, 7 'sanitary inspectors' and 47 were classified as 'occupation not stated'.[53] At no time during the period under review did the percentage number of female teachers fall below thirty. Unlike the female students, the majority of male students were from some branch of the engineering industry with mechanical engineers predominating.

Table 3.33 demonstrates that even though the vast majority of students attending evening classes in the college came from Glasgow and its suburbs the catchment area was remarkably wide. This was a reflection of the improved municipal transport network, an integrated tramway system which connected central facilities in Glasgow with Airdrie in the east and Paisley in the west. Suburban fast, cheap trains extended the possibilities of attendance to outlying Ayrshire, Dunbartonshire, Stirlingshire and Renfrewshire.[54]

In early 1900 the comment was made that the district served by the College contained more than one half of the industrial population of Scotland; its day students were drawn from all parts of the country, as well as from every important British colony, whilst its evening students were to be found in nearly every shipyard and works 'within twenty miles round Glasgow.'[55]

TABLE 3.33. THE ROYAL TECHNICAL COLLEGE, GLASGOW. AREAS FROM WHICH SCOTTISH EVENING CLASS STUDENTS WERE DRAWN 1910-1911 TO 1930-1931

	1910-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31
Glasgow	3 346	3 318	3 070	3 271	1 831	1 599	1 568	1 867	1 658	3 374	3 194	2 869	2 665	2 673	2 516	2 030	2 064	2 054	1 786	1 832	1 790
Lanarkshire	635	481	514	431	331	210	228	275	230	467	426	478	478	472	492	484	460	500	460	420	397
Renfrewshire	422	299	336	302	134	115	127	110	110	277	319	265	262	258	303	252	281	211	220	211	226
Dunbartonshire	305	331	283	170	166	95	121	160	109	259	147	139	203	221	242	237	220	236	215	232	192
Ayrshire	123	119	99	73	64	42	53	34	29	94	84	96	94	117	122	120	97	76	85	107	114
Stirlingshire	59	61	62	63	43	46	31	32	38	84	94	102	90	110	101	97	75	98	97	86	104
Other Scottish	262	82	95	32	14	8	6	13	4	nil	77	nil	nil	nil	nil	nil	17	44	49	45	38
Totals	5 152	4 691	4 459	4 342	2 583	2 115	2 134	2 491	2 178	4 555	4 341	3 949	3 792	3 851	3 776	3 220	3 214	3 219	2 912	2 933	2 861

Source: TRTCG Annual Reports for years shown. SUA ref. E4/1/5; E4/1/6

TABLE 3.34. THE ROYAL TECHNICAL COLLEGE, GLASGOW. AREAS FROM WHICH SCOTTISH DAY CLASS STUDENTS WERE DRAWN 1910-1911 TO 1930-1931

	1910-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	24-25	25-26	26-27	27-28	28-29	29-30	30-31
Glasgow	215	251	273	292	188	203	228	310	439	539	570	474	474	376	395	395	394	382	407	437	387
Lanarkshire	63	52	49	61	40	33	28	68	117	105	137	126	105	96	98	82	98	109	107	101	102
Renfrewshire	49	41	50	45	29	27	38	55	95	66	99	92	90	94	71	67	66	56	76	81	82
Dunbartonshire	25	30	28	29	10	13	9	27	51	44	36	54	55	60	46	38	52	68	55	62	65
Ayrshire	56	45	41	61	39	25	18	44	51	80	94	108	126	122	90	85	98	89	101	108	99
Stirlingshire	8	9	23	24	15	4	10	23	38	45	55	42	56	52	45	50	47	40	40	35	32
Other Scottish	75	82	95	32	14	27	28	42	64	151	167	197	154	132	128	114	119	132	124	118	89
Totals	491	510	559	544	335	332	359	569	855	1 030	1 158	1 093	1 060	932	873	831	874	876	910	942	856

Source: TRTCG Annual Reports for years shown. SUA ref. E4/1/5; E4/1/6

From the beginning of the twentieth century overseas students gradually made their appearance amongst those attending the College full-time and Table 3.35 gives details.

TABLE 3.35. THE ROYAL TECHNICAL COLLEGE, GLASGOW. A COMPARISON OF SCOTTISH AND OVERSEAS STUDENTS ATTENDING FULL-TIME DAY CLASSES 1910-1911 TO 1930-1931

Session	Scotland	England & Wales	Ireland	Foreign	Total	Percentage non-Scottish/ Total
1910-1911	491	11	2	56	560	12.3
1911-1912	493	17	nil	62	572	13.8
1912-1913	526	23	6	55	610	13.8
1913-1914	594	16	1	58	669	11.2
1914-1915	367	17	1	60	445	17.5
1915-1916	332	11	1	65	409	18.8
1916-1917	359	25	2	67	453	20.8
1917-1918	569	25	2	66	662	14.0
1918-1919	855	28	4	94	981	12.8
1919-1920	1 030	55	2	48	1 135	9.3
1920-1921	1 158	64	3	65	1 290	10.2
1921-1922	1 093	37	4	69	1 203	9.1
1922-1923	1 060	30	4	66	1 160	8.6
1923-1924	932	19	1	54	1 006	7.4
1924-1925	873	11	5	47	936	6.7
1925-1926	831	9	2	53	895	7.2
1926-1927	874	14	1	45	934	6.4
1927-1928	876	17	6	32	931	5.9
1928-1929	910	19	2	36	967	5.9
1929-1930	942	21	1	44	1 008	6.5
1930-1931	856	18	3	26	903	5.2
Totals	16 021	487	53	1 168	17 729	9.6

Source: GWSTC/TRTCG Annual Reports for sessions shown
Percentages calculated correct to the nearest decimal place

The Table shows that from session 1910-1911 to 1930-1931 over 90 percent of all students came from Scotland with only approximately 10 percent coming from outwith the country. England and Wales accounted for 487 of the students and Ireland 53. The remainder of the students were of foreign origin.

CONCLUSION

This chapter has attempted to detail the student population of the University of Glasgow 1910 to 1930. For comparative purposes relevant details from The Royal Technical College, the other three Scottish universities and English universities have occasionally been included. This information sets the University of Glasgow in a wider context and one can see its importance to science and the arts in comparison with what may be termed its competitors for the available students.

And these students came from the United Kingdom, the British Colonies and other parts of the world to receive what was perceived to be a first-class education. In order to be able to partake in tertiary education students, both male and female, of Scottish extraction, were able to receive help with their fees from the Carnegie Trust. Undoubtedly this was a boon to the students and the universities alike. It enabled students to attend university and occupy places which might otherwise have remained empty. The geographic origins of students, gender, age and parental occupation have been included whenever this information was available

The lack of money was always a problem for Glasgow and the source of this income has been highlighted. The main sources were student fees and Recurrent and Non-recurrent Treasury Grants. Legacies and donations from benefactors were also welcomed and the size of these were sometimes substantial as, for example, those from the Gardiner brothers following the War.

The students were the lifeblood of the University and the events covered by the next chapter were to drain it to an extent that could not have been anticipated by anyone of the time. Chapter 4 details the activities of the University 1914 to 1918 and illustrates how Glasgow adapted to the catastrophic events of this period.

Some good did come of the conflict; the movement towards the emancipation of women was accelerated. Undoubtedly, if given the choice, women would willingly have waited some time longer for emancipation if it could have been achieved without the spur of the Great War and the ensuing carnage and decimation of the European menfolk.

CHAPTER 3

FOOTNOTES

[1] *The Curious Diversity* p.73
[2] By calculation, to show percentage of male and female students in Edinburgh and Glasgow Universities combined during session 1919-1920.
Males: Edinburgh 1169 + Glasgow 1302 = 2471/3321 = 74.4%
Females: Edinburgh 304 + Glasgow 272 = 576/785 = 73.4%
[3] Calculated from Table 3.5. 1638/ 2001 = 81.86 %
[4] Calculated from Table 3.6. Aged 18-21 = 464/649 = 71.5%.
Aged 18-24 = 573/649 = 88.3%
[5] Vol. 3 Statistics. No pagination
[6] *Glasgow Herald* 29 December 1916 in *Newspaper Scrapbook* No. 6 pp.89-90
[7] UG Vol. 3 Statistics
[8] Idem
[9] Idem
[10] Idem
[11] UGCR 1919-1920 p.271
[12] Idem
[13] Idem
[14] Idem
[15] UG General Council Reports (UGGC) 30 April 1919 p.14
[16] 7 990/10 992 = 72.7%
[17] 8 557/10 992 = 77.8%
[18] 4 36/4 182 = 10.4% Empire students at Edinburgh
[19] 631/797 = 79.2%
[20] 6 106/10 992 = 55.5%
[21] 5 732/10 992 = 52.1%
[22] Students living at home: Aberdeen 745/873 = 85.3%;
Edinburgh 1 807/2 328 = 77.6%; Glasgow 1 656/1 900 = 87.2%;
St. Andrews 375/631 = 59.4%
[23] All percentages calculated from information in Tables 3.8; 3.9; and 3.10
[24] All percentages calculated from information in Tables 3.8, 3.9, and 3.10
[25] UG Calendar 1894-1895
[26] Ibid 1914-1915
[27] Ibid 1915-1916
[28] Tom Begg *The Excellent Women* (Edinburgh 1994) pp.25-26.
[29] Ibid p.23
[30] Ibid p.28
[31] UG Cal. 1892-1893
[32] Ibid 1895-1896 to 1912-1913
[33] Ibid 1888-1889 to 1912-1913
[34] Ibid 1912-1913 p.572
for further details of some aspects of this chapter see Leslie L Forrester unpublished Ph D University of Strathclyde 1991, chapters 5, 6, 7.
[35] John Butt *John Anderson's Legacy* p.124

[36] Calculated from data in Tables 3.18, 3.19 and 3.20

[37] All percentages calculated from information in Tables 3.21 and 3.22. Aberdeen 14 to 11; Edinburgh 34 to 33 ; Royal Technical College 4 to 3; St.Andrews & Dundee 6 to 7

[38] Calculated from Table 3.23

[39] Calculated from Table 3.23

[40] Calculated from UGCR 1924-1925 p.12

[41] 62% 1919-20; 76% 1924-25; 64% 1930-31

[42] UGCR 1930-1931 p.3

[43] Idem

[44] Ibid 1924-1925 p.3

[45] Idem

[46] Ibid 1924-1925 p.4

[47] Percentages calculated from Table 3.26 and rounded to nearest whole number

[48] Calculated from information in Table 3.26 and rounded to nearest whole number

[49] UGCR 1920-1921 p.17

[50] Idem

[51] Idem 1920-1921 degrees awarded: Arts = 667; Pure Science = 184; Agriculture = 76; Medicine and Dentistry = 444; Technology = 189

[52] Ibid 1920-1921 p.2

[53] TRTCG Annual Report 1915-1916. By 1911, 70 percent of all teachers in Scotland were women. Helen Corr 'The Sexual Division of Labour in the Scottish Teaching Profession, 1871-1914' p.137 in *Scottish Culture and Scottish Education 1800-1980* W M Humes and H M Paterson eds. (Edinburgh 1983)

[54] Forrester Thesis p.250

[55] Undated draft 'Scheme for New Buildings' located between pages 60-61. TRTCG Chairman's Committee Meetings Vol. 1, 1895-1906 p.3 University of Strathclyde Archives Reference E1/5/1

CHAPTER 4

THE UNIVERSITY OF GLASGOW 1914-1918

This chapter considers the activities of the University of Glasgow and its affiliated college, The Royal Technical College, Glasgow during the First World War. How these great educational institutions, each with a large student population, highly qualified staff and efficient institutional organisations responded to the coming of war will be described.

Areas covered include tests performed on various materials and processes for both the Government and local industry, the participation of staff in war work, including activities on various Government committees; finances and the rehabilitation of servicemen. In the case of the College, courses offered for the training of munitions workers will also be dealt with.

THE UNIVERSITY OF GLASGOW

The obvious initial reaction was for past and present students and staff members to volunteer for active service, and this they did in large numbers. During the academic session 1913-1914 the total student population had been 2 916. In the first full session after the war commenced, 1915-1916, the number of students had fallen to 1 822. This represented a drop of 38 percent and was due entirely to the fall in male student numbers. Over this period there was a fall in the female student population of only 4, equivalent to 0.6 percent.[1]

Principal MacAlister commented:

> The class-rooms were more and more depleted, and at length only a number of women students, and youths under service age putting in a session of study before joining their fellows in the field, remained to carry on the academic tradition.[2]

Within days of the outbreak of war an emergency meeting of the Senate was held. Five members attended and it was resolved that any undergraduate who went on active service would receive 'sympathetic consideration' regarding attendance, duration of study 'and the like' in order that their graduation would not be unduly delayed because of their absence due to military service.[3]

Absence from the University was not always due to military service, even though the War was responsible. Dr Watt, Lecturer in Psychology and Mr. Alexander Bodin, Assistant Lecturer in Logic were each on holiday on the Continent when war broke out and their return to Glasgow was consequently delayed. In the meantime the University arranged for their classes to be covered.[4]

One prominent absentee from the University in the early days of August was the Principal, Sir Donald MacAlister. Upon his return to Glasgow on 16 August 1914 Sir Donald gave an interview to the *Glasgow Herald.* This appeared on 17 August under the heading 'Tribute to German Kindness.'[5] The Principal related that he, his wife and his daughter had been prisoners in Germany since 3 August when, with other foreigners, they had been turned out of the resort of Bad Ems. Under police and military protection they had travelled to Frankfurt. Upon arrival, Sir Donald, as a

doctor of medicine, had been placed in charge of seven invalid English ladies, who had been patients at Bad Ems, and their maids. In Frankfurt they had been furnished with a pass allowing them to travel to England by way of Holland. Principal MacAlister related that everywhere military and civil officials, soldiers and private citizens showed the party the utmost consideration and kindness and nothing unpleasant occurred. Sir Donald said that he was indebted to unknown Germans for advances of money, without which his journey and that of his family would not have been possible.

At Wesel, a city on the Rhine, whilst en-route for Rotterdam by Dutch steamer, they were stopped by the military authorities. The military explained that orders from Berlin required the detention of all British men between 20 and 45 years of age as a similar order had been made in Britain for the detention of all Germans liable to military service. The German Commanding Officer expressed his regret, put the young men on their word of honour not to escape and explained that they would be well treated and accommodated 'in the fortress as comfortable as possible.' In conclusion Sir Donald, who had in recent months been suffering from ill-health, told the *Glasgow Herald* reporter 'that his health had much benefited by his "cure" at Ems, and that none of the party is seriously the worse for this trying experience.'[6]

In a similar manner, some Continentals were in Britain when war broke out and either could not or did not wish to return home during the crisis which had erupted. In November 1914, on the motion of the Principal, the Court agreed to offer academic hospitality to teachers and students of some Belgian universities who had taken refuge in Glasgow at the outbreak of war. It was agreed to request the heads of the relevant departments of the University to offer them such facilities for study or research in the University as it was practicable to provide.[7]

Shortage of teachers in many of the University's departments called for astute and quick thinking on the part of the Court in order to maintain classes. For example, in 1914 it was reported that Professor Havet of the University of Louvain, Belgium, was travelling in Scotland so it was agreed to ask him to lecture on the subject of Cytology in the Department of Zoology 'at a suitable fee', in place of Dr Agar who was on military service.[8]

Professor Havet contacted the University to say that unfortunately, at this time, he could not manage to lecture in Glasgow but offered his services for the summer term. The Court discussed this and decided to offer the Professor 50 guineas (£52-50p) to deliver a short course of lectures that would be open to all.[9] Professor John S Phillimore, who held the Chair of Humanities, then reported that Professor Van Den Ven, also of the University of Louvain, 'an eminent Classical Scholar and Palaeographer' was at present also in Britain and Phillimore suggested that he should be invited to deliver a course of lectures in the Classics Department. The Court approved.[10] In February of 1915 the Professors Havet and Van Den Ven each agreed that they would lecture in Glasgow during the summer term for a fee of 50 guineas each.[11]

The weeks following the August declaration of war were difficult ones and the University may be viewed as a microcosm of national uncertainty. Staffing was made difficult not only because of war service but also because the resultant fall in student numbers made it difficult to ascertain how many staff were required to cater for student needs. The whole country was in economic turmoil. Galbraith relates that although by World War Two there was a fairly rational design for economic mobilisation in all countries, in the First War there was none. At this time economic action was strictly *ad hoc* and governed by the politics and other circumstances of the time.[12]

The Scottish national political scene of the time was that put in place by the December 1910 general election when the Liberals took 58 seats to gain 53.6 percent of the popular vote.[13] Additionally, there were nine Conservative and three Labour MPs returned, giving a total of 70 Scottish Members of Parliament to take their seats in Westminster.[14] In this election the post-war strength which Labour was to achieve was not discernible. Labour fought five seats in Scotland, winning three of them, whilst in England and Wales 51 seats were contested and 38 held.[15] There were 14 by-elections between December 1910 and the declaration of war in 1914, three of them in Scotland: Kilmarnock, September 1911; Mid Lothian, September 1912 and Lanarkshire South, December 1913.[16]

Within two months of war commencing Professor William Smart of the University read a paper before The Royal Philosophical Society of Glasgow on 'The Economic Dislocation of the War.'[17] His opening words must have shocked his audience when he said 'As an economist, I have never been able to understand the worship of the Soldier. He is your true parasite.'[18] The soldier who took up arms and made a nation feared, 'respected', was to Smart the mere worship of brute force. On the other hand:

> For the army as a National Police - to keep the peace - to guard us quiet workers while we earn our living and make our appointed pilgrimage through earth to heaven, I have nothing but admiration and respect.[19]

On the economic scene he addressed the problem that would soon be voiced by many others, the total reliance of Britain upon Germany and Austria for many of its raw and manufactured goods. Other nations on the Continent who had supplied Britain and were its allies in the war, Russia, France, Belgium were themselves unable to send goods to Britain.[20] The other side of the coin was that in 1913 Germany had been Britain's best customer, taking £60.5 millions of goods. This market was now closed. Other countries who took British exports were: USA, £59.5 million; France, £41.5m; Russia, £27.5m; Belgium £24m; Argentine, £23.5m; Netherlands, £21m. These British exports included home produce and Colonial re-exports through the UK ports.[21]

Other aspects of the War which were of concern to Smart was that he believed able bodied men who possessed skills of particular use to the civilian population should be employed at home instead of serving in the armed forces. It was what he referred to as the 'industrial army' at home. All were 'Servants of the country in the one way or the other, and the one service is as honourable as the other - which might, one would think, give pause to the stupid as well as cruel "white feather" movement.'[22]

Smart reminded his audience of the time that the War Office had made a specific request that all men employed on the railways, in the manufacture of armaments or with food-producing companies must not be accepted into the forces unless they could produce a certificate of exemption from civilian work issued by their employers.[23] And finally, in the tone of many before him and many who would follow, Professor Smart commented upon the superiority of German education.

> Germany, in many instances, has given far more attention to the application of science and the acquirement of expert and technical skill than we have. How much more that has had to do with her superiority in the chemical industries, in dyes and drugs, in mathematical and physical apparatus, is an open secret.[24]

Almost foreseeing the use of submarines by both the Allies and Germany to starve each other into submission when their armies had stalemated on the Western Front, Smart commented that 'unless something very unforeseen happens, economic ruin will bring her [Germany] to her senses long before the overthrow of her arms.'[25] Smart may also have been slightly biased towards the Germanic way of thinking due to his early economic training when he came under the influence of the Austrian School of Economists.[26]

Since all Britain's supplies were seaborne, it seemed feasible to strangle the British Isles by increasingly ruthless submarine warfare against shipping. The British in turn did their best to blockade supplies to Germany in order to starve both the German war economy and the German population. It did not quite happen that way but submarine warfare did precipitate the entry of America into the fray on the side of the Allies in 1917.[27]

Another member of the University of Glasgow teaching staff put his thoughts on the economic progress of the war into words and print when he also spoke before The Royal Philosophical Society of Glasgow. Speaking on 3 November 1915 on 'The War and Economic Progress' John H Jones stated:

> We are fighting an enemy who was fully prepared in the financial as well as the military sense; an enemy gifted with unrivalled powers of organisation and methodised work; an enemy who, up to the present at least, seems to have shown greater inventiveness, adaptability and initiative than ourselves.[28]

Mr. Jones was a colleague of Professor Smart in the Department of Political Economy in the University. Unfortunately, Professor Smart was suddenly taken ill at home and died on 19 March 1915.[29] As a consequence of his death his Chair, the Adam Smith Chair, became vacant. After advertising the vacant post the University Court met in

June 1915 to interview the eight candidates who had been selected for the short list. Mr. J H Jones was one of the candidates but he was unsuccessful. The Chair went to Dr. William Scott of the University of St. Andrews, with effect from 1 October 1915.[30]

There was, however, a consolation for Jones. He had been given responsibility for the running of the Department in the period following Professor Smart's death and the appointment of a new Professor. As a consequence of these additional duties and his previous good work within the University, and no doubt as compensation for not being given the post, he was promoted to a grade two lectureship at a salary of £300 per annum.[31] In September 1919 Jones resigned from the University in order to take up the post of Professor of Economics at Leeds University.[32]

James W Murray, President of the Glasgow Chamber of Commerce, speaking in 1917, gave his views on changes to be made in the commercial, industrial and social communities of Britain and its Empire after the war.[33] Agreeing with Smart, and voicing what may be conceived as a general consensus amongst the economists of the time, Murray ventured to say that the country was largely unprepared for war when it arrived; 'we had no constructive policy with regard to trade or commerce, and we found in the time of crisis that industries, vital to the needs of this country, were dependent on enemy countries for many essentials.'[34] Giving details, Murray said that the key commodities of many important industries were in enemy hands: dyes, tungsten, spelter, optical glass, magnetos and many others were either under the control or monopoly of Germany.[35]

Quoting David Lloyd George, speaking in early 1918 on the same topic, a correspondent in *The Journal of the Glasgow Chamber of Commerce* wrote: 'War at any rate has taught us one lesson, that the preservation of our essential industries is as important a part of our national defence as the maintenance of our army and our navy.'[36] *The Journal* lauded the creation of the Commercial Intelligence Department by the Government as one of the most important measures relating to the protection of British commerce. It claimed that the first essential for the strengthening of British influence in overseas markets was such a complete centralised system of intelligence. The Commercial Intelligence Department would help to combat the strength of

countries such as Germany where 'the skilful and unscrupulous trade organisation of Germany has made it impossible for this country to rely upon the haphazard methods of past years.'[37]

Dr. Cecil H Desch, a Lecturer in the University, presented a paper on 'Metallurgy and the War' before The Royal Philosophical Society in November 1917.[38] He commenced his paper by stating that historically, Germany and the countries bordering it were regarded as the home of metallurgy, due mainly to the mineral deposits and the proximity of ample forests used for fuel in previous years.[39] Desch explained that a large proportion of the ores used by Germany to produce tungsten came from the British Empire. Germany then made tungsten which it exported to Britain. One consolation of the war was that at its commencement, in order not to be starved of tungsten, a new smelting plant was built in Widnes, north-west England, where the Empire ores were smelted.[40]

Dr. Desch explained that the zinc industry in Britain, though small-scale, was nevertheless largely under the control of a German metal syndicate. He went on to say that in Britain, sulphur dioxide from this zinc production was vented to the air, whereas in Germany they produced sulphuric acid from their sulphur dioxide. And from this 'one of the lessons most forcibly brought home to us by a comparison between German and British methods in the chemical industry is the absolute necessity of the utilisation of all by-products if success is to be obtained.'[41]

Continuing, Dr. Desch said that it was gratifying to know that a real interest in scientific research in relation to industry had been awakened in Britain as a result of the War. As an example he said that many firms which had previously proceeded by rule of thumb had adopted scientific control in their manufacturing processes. Many had also established works laboratories employing skilled chemists and metallurgists. There was also an increased tendency for pooled research by groups of firms or by an industry as a whole and yet industry wanted to avoid what was described as the undoubted evils of the Prussian system, with its undue subordination to State control. 'The establishment of the new Government Department of Scientific and Industrial Research is planned on the right lines.'[42]

Referring to Scotland, Desch explained that a movement was afoot to establish an organisation for research in connection with the great industries of the Clyde Valley and it was to be hoped 'that Scotland will take such steps as will aid her to maintain that industrial supremacy which has been hers in the past.'[43] In order to do this Desch opined that more attention should be given to scientific teaching and the War had made more people aware of this necessity. There was, however, no need to copy the Prussian model. Scotland must develop

> ...on lines consistent with our character as a liberty-loving people, a system which will enable us to reorganise our industry on a higher plane, both in regard to efficiency and to the living of a healthful and happy life by the workers engaged in it. Only so can we continue to hold our position in the industrial life of the world.[44]

So, in the locality, the War was being discussed and analysed from many different viewpoints. The consensus of opinion amongst the academics and businessmen was that German superiority in business and education would make it a difficult enemy to beat, but steps had to be taken to combat this strength.

Even before the War had started there had been discussions in the locality about whether or not there should be universal conscription in the event of a war.[45] At a conference held in January 1913 the opinion was voiced that it was foolish to think that this country could never be invaded. The Government of the day had made it abundantly clear that Britain's standing army should be of such a size as to be capable of meeting an invading force of 70 000. Supposedly quoting one of Napolean's generals, Sir J H A MacDonald said that 'the British Infantry is the finest in the world, fortunately there is very little of it.'[46]

Other contributors to the conference included Lord Provost Stevenson, who, after the war, gave £20 000 to the University to establish a Citizenship Fund to finance the Stevenson Lectureship in Citizenship.[47] In general the conference was against the establishment of universal conscription and favoured the expansion of the Territorial Army Force or the establishment of a Home Defence Army.[48] And in the area of national defence, the University played a prominent part in its organisation.

Shortly after the outbreak of war Dudley J Medley, Professor of History, was elected the University representative on the Territorial Force Association, Glasgow. He was re-appointed to this position in 1916 for a period of three years from 1 October 1916.[49] The following year, 1917, the Territorial Force Association wrote to the University stating that the War Office had asked it to raise three Field Ambulance units in connection with the City of Glasgow Volunteer Regiment and it wanted Dr. James Gemmill to take charge of them. The Court agreed.[50]

Professor Medley was also one of the founder members of the University of Glasgow Officer Training Corps (OTC). The inaugural meeting of the contingent took place on Monday 12 May 1908. There were seven committee members present, including Principal MacAlister, and Professor Medley took the Chair.[51] This first meeting was very brief and there were only two resolutions. The first resolution was that application be made to the Army Council for a sum of not less than £400 for a military lecturer. The second resolution was 'that it be remitted to the Principal, Cols. Hendry and Morrison and Professor Medley to take the necessary steps to secure the Military Lecturer.'[52]

The OTC flourished and in 1910 permission was received from the War Office to form an Engineering Unit.[53] The following year it was reported that the Infantry Unit was composed of 193 men and the Engineering Unit 70.[54] By mid-1912 the numbers were 264 Infantry and 90 Engineers, totalling 354.[55]

In the October following the outbreak of war, the Convener of the OTC's Military Education Committee wrote to the Secretary of the War Office in London complaining that just as recruitment had reached a maximum, it was to lose all but 10 percent of its firearms. As the authorised strength of the contingent was set to rise from 400 to 430 men this meant that there would be only 40 rifles to share between the four Companies. Commenting upon the situation the Convener stated:

> It is to be remembered that our permanent staff is diminished, that the number of our officers is cut down by one half, that not a single NCO is left and that all our most experienced cadets have gone, while the number of recruits is phenominally (sic) large.[56]

Following this comment the Convener made the plea that the contingent be allowed to keep 20 percent of the firearms in its possession instead of the 10 percent stipulated by the War Office. Initially, in order to protect the OTC arsenal an armed guard was mounted 24 hours per day. This proved to be costly to the University so it asked the War Office to help defray the costs. The War Office refused to give more money so to protect the rifles the bolts were removed, making them inoperable.[57]

In November 1914 the war Office wrote to the Convener of the University's Education Committee asking if the University could supply the War Office with training officers for various branches of the army. The Secretary said 'I am to take this opportunity of informing you that the Army Council are very grateful to the authorities of your University for the assistance rendered in this matter since the outbreak of war.' He then went on to ask the University for even greater effort by circulating War Department recruitment leaflets to the various societies and athletic or social clubs of the University, with any cost to be reimbursed by the War Department.[58]

Because on the outbreak of war there was an immediate rush of applications for commissions from members of the OTC there was some doubt that the contingent could continue. However, acknowledging the importance of the contingent, the War Office allowed Sergeant Major Gray to continue his work with them instead of joining his own unit. But there was too much work during the early weeks of August for the single non-commissioned officer remaining so he in his turn was assisted by three of the Cadet Sergeants. These three, Bacon, Forson and Laird gave unstinting and invaluable service until they themselves were appointed to commissions.[59]

This hand to mouth existence of training without qualified instructors was faced by the OTC as best it could. In order to cope with the almost impossible task of training so many recruits with the staff reduced to a minimum, the senior cadets were trained to be instructors so that by the end of 1914 there was a small staff of freshly promoted non-commissioned officers able to help with instruction duties. Additionally, officers helped whenever they could with parades in the afternoons. Four Lieutenants were named as being able to help whilst a fifth was not able to.

Amidst all the enthusiasm for helping the country in its crisis time, it is not surprising that some were more interested in their own well-being, and this attitude could spread. It was put very plainly in the Minutes of the OTC.

> A considerable number of those who came forward, openly express their desire to do as little as possible. This produced a lack of keenness, a failure of appreciation of discipline which was being severely dealt with in individual cases.[60]

And yet the same Minutes stated that a route march had taken place 'on Saturday afternoon' when 580 men took part. Seemingly, most people were more than willing to make an all-out effort to help win the War. Perhaps they harboured the sentiments expressed by Professor William Smart: 'At a time when the fate of all we hold dear is trembling in the balance every man is bound to satisfy his conscience that he cannot do more than he is doing to save his country.'[61]

On the instructions of the War Office a School of Instruction for Young Officers was established at the University and was officially opened on 1 April 1915. The School was, however, short-lived and, in accordance with instructions from the War Office, closed 15 March 1916. During this period 666 officers belonging to the New Armies, Special Reserve and Territorial Force had undertaken training. Of this number 590 were granted certificates of satisfactory progress.[62] The place of this and similar schools was to be taken by Cadet Battalions, with the Scottish Regiments being stationed at Gailes, Ayrshire. All staff were to be allocated other duties with Major Wilkie and Captain Macrae of the University set to join the teaching staff at Gailes.[63]

During 1916 the War was beginning to take its toll of manpower, especially in the case of medical men. The Army Council decided that as of February 1916 all 4th and 5th year medical students would be exempted from combatant service only by joining the OTC. Under this compulsion over 200 joined the Glasgow contingent by the end of March 1916. They were 'required to attend eight parades a month under the penalty of being handed over to the Military Authorities.' As of 1 April 1916 the contingent's strength was 268, made up of 240 senior medical students and 28 boys under the age of 18 years and six months.[64] Obviously the threat of 'being handed over to the

Military Authorities' had the desired result with senior medical students preferring the rigours of the OTC to the trenches.

And so the War progressed with the University and its Officer Training Corps playing their part to the full. At the close of the War, in appreciation of the good work done by the OTC the War Office offered them a German field gun as a trophy. This was accepted with grateful thanks.[65]

In the turmoil of the early weeks of 1915 the University of Aberdeen wrote asking what general arrangements Glasgow was making regarding the payment of salaries and wages to teaching staff, laboratory assistants and others called for military service. Glasgow replied that everyone except assistants were to have their jobs kept open for them pending their return and to be paid their salary less any army pay. Concerning the assistants the University commented that the question of remuneration had not been framed by any of them and it was thought unnecessary to raise the question.[66] This proved to be a classic case of 'let sleeping dogs lie.'

The University Court, meeting in November 1914, decided that the salary of staff members, including army pay and allowances, would be made up to a sum equivalent to a maximum of half their salary.[67] One year later conditions were improved when the Court reached a decision that members of University staff who obtained leave of absence for service as non-commissioned officers or privates under recruitment schemes, could, on application, be granted their normal salary less any military pay and allowances.[68] This was yet another way for the University to play its part in the war effort. By giving an extra incentive for men to join the forces, any fear of loss of earnings, whereby family members remaining in Scotland might suffer because of what could be a large decrease of money into the family home, were lessened by the generous action of the University.

Salaries, less active service pay, were paid to staff on leave of absence. Even those remaining, such as junior teaching and administrative staff, received a war bonus of up to 25 percent of salary.[69] Because the day wage rates paid to the British combatants were insignificant this meant that the University was shouldering a large financial

burden by paying its staff the difference between army pay and civilian salaries. In this respect the employees of the University suffered little financial loss. The same could not be said of the general British population who had taken up arms, they received only their army pay. The cost of the war was thus placed on those in the field at greatest physical risk; a double burden. 'It is one of the less celebrated facts of the war that the ordinary infantrymen were expected to combine both economic and supreme sacrifice.'[70]

When the Finance Committee of the University met in November 1915 the internment of Mr. F Broecker, assistant lecturer in German, was discussed. It was pointed out that Broecker was not naturalised but was married to a Scotswoman and had a young family. He had been a teacher at the University since 1906 and the family had no other source of income except for his salary. The matter was referred to the whole Court.[71] The Court meeting later in the month explained that Broecker's application for naturalisation was being processed when war broke out. It was decided that during internment half of his £150 salary would be paid to his wife.[72]

Another staff member of German origin, Professor Ludwig Becker, who held the Chair of Astronomy, was asked to relinquish control of the Observatory. The Principal informed the Court that the Under Secretary for Scotland, Sir James Dodds, had written to him advising that it was in the best interests of the country if Professor Becker was removed from the Observatory. Letters and telegrams concerning the occupation of the Observatory passed between London and Glasgow.[73] There was no acrimony apparent in the letters and the Principal kept Becker fully acquainted with proceedings at each step. Eventually 'Professor Becker had accordingly withdrawn from the Observatory and the residence belonging thereto on March 28.' Leave of absence was granted by the Principal to Professor Becker and his salary was to continue as though he were still in office. Mr. Connel, Assistant Controller of the Observatory, took over from Professor Becker aided by Mr. Wrigley.[74]

Following the war Professor Becker, on the instigation of the Secretary for Scotland,[75] was made to retire from the Chair of Astronomy 'in consequence of enemy associations' despite being a naturalised British citizen since 1892.[76] This request was

reluctantly carried out by the University, but only after writing to the Secretary, James Dodds, saying that it did not have the power to force Becker to resign.[77] Becker was awarded an undisclosed lump sum following the Secretary's decision.[78]

Both male and female staff and students became engaged in Government work to aid the war effort. In all cases the University actively encouraged students and staff to participate as fully as possible in the War. The Faculty of Arts asked heads of departments to compile lists of students who possessed qualification such as business experience, a knowledge of modern languages 'and so forth.' These lists were to be forwarded to government departments where it was hoped that they might prove useful to them. The Faculty added that this had already been done in the Faculty of Science 'with good results.'[79]

The Faculty of Science and the Board of Studies had a remit to collect information on workers and students in Applied Science 'similar to that already supplied to the Royal Society, for use in recommending students for special appointments in connection with war work.'[80] A committee composed of Professors Andrew Gray, Natural Philosophy, and J Graham Kerr, Zoology, and the Dean was appointed to examine the information collected and late in November 1915 it presented the following:

1.	List compiled of staff, students 'and others' in science departments of the University who were able and willing to give aid in special scientific work connected with the war.
2.	Heads of Departments were to advise on space available to carry out such special scientific work.
3.	'That the Committee be requested to obtain from the War Office, Ministry of Munitions and Admiralty information as to work which these department are desirous of having carried out.'
4.	Staff and other lists to be sent to Government Departments.
5.	The Committee was empowered to give whatever information was required by the Departments on the staff and other lists supplied to them.[81]

Male students were drafted into local munitions factories and females into hospitals. In 1915 the Court resolved that any student who had obtained a class ticket in a given subject for the academic session 1914-1915 but, owing to his employment on government work in a munitions factory, was unable to present himself for the subject

examinations at the end of the term should contact the Registrar and enrol for a special examination with a view to graduating in October. Such cases were to be considered along with those of students absent on Military Service.[82] And so the male students locally employed in factories knew that they would not be penalised for engaging in war work.

Later in the year all privileges extended to men on military service and munitions work were also granted to female students engaged on hospital service.[83] Females also helped out in the post office at Christmas time. The Board of Trade contacted the University in October 1916 stating that it was anxious to secure the full-time services of a number of women students for postal work from 27 November to the end of term. The Senate agreed that any such students would be regarded as having been on war service as far as the granting of class tickets was concerned.[84] 130 women volunteered for the work. This was 20 percent of the female student population.[85]

Not everyone from the University welcomed the move towards the employment of women in the factories of the locality. Professor William Smart, speaking in October 1914 decried the employment of women in the following terms:

> If our factory girls, besides being specialised workers with machinery, had maintained the old traditional household crafts of sewing, knitting, mending, a crisis like the present, when demand stops for their factory products, might have found a profitable field for these old-fashioned but necessary services....It is rather a curious commentary on elementary education that it is, for the most part, only the women of the comfortable classes who are able to meet the new demand for home-made goods.[86]

The closure of several of Britain's overseas markets meant that the demand for home-produced goods had never been greater, yet many of the female population were unable to practise the household crafts of old because they had never been taught. In these assertions the Professor was doubtless at odds with the majority of the population of Britain. Useful as hand produced goods, such as warm clothing for the population at home and the troops in the trenches, munitions and the other goods of war were also desperately needed.

One person who certainly disagreed with the professed ideas of William Smart that a woman's place was in the home was Elizabeth B Mitchell.[87] At the outset Miss Mitchell stated that among all the difficult questions involved in the reconstruction of industry after the War, the one concerning that of the woman worker was of prime importance.[88] Working in men's occupations, women, Mitchell claimed, had gained certain tactical points which must not be lost. They had established a moral claim which should not be thrown aside after the War. And yet, facing realism, Elizabeth Mitchell noted that after the War the present moral claim may not be as strong then as it was now.

> After the war, when the men from the trenches are at home, many of them disabled and weakened, the moral claim may well seem to come with a different voice; and then the sentiment, which now runs so strong for the woman munition-worker, may run as easily against her.[89]

Elizabeth Mitchell doubted that the present involvement of women in industry would lead to permanent changes in their social status. Her doubts arose because, as she related, before the admission of women to the factories, agreements had been reached between the government and the larger trade unions guaranteeing the restoration after the War of the position of the men in the workplace. Miss Mitchell commented that the girls who had gone into trades knew that they had the status of temporary workers only.[90] Ending her speech on a philosophical note about the uncertainty of the future she said 'The plough of war goes deep and prepares the ground for unknown harvests.'[91]

In April 1915 the whole staff of the Engineering Department; lecturers, assistants, demonstrators and mechanics in the engineering laboratory, offered themselves in a body to the military authorities in case their services might be of use in connection with the provision of munitions. The Major General of the Ordinance Department acknowledged the value of the offer and informed the University that he would consider the matter.[92]

Sometimes the University Court had to perform a type of juggling act between what was best for the country allied with the efficient functioning of the University. A

communication dated 10 November 1915 was submitted to the Court from Lecturers and Assistants engaged in teaching senior medical students asking for guidance as to the attitude which should be adopted towards the appeal by the Government for additional medical men to give full-time service with the Armed Forces. The letter stated that, while recognising that the teaching of senior medical students must continue, the medical staff felt that it was not for them to decide to what extent, if any, their part of that work should be looked upon as essential.

The Court agreed to reply that in as much as the authorities required the University to provide specially for the instruction of fourth and fifth year medical students, the Court was of opinion that it was not practicable that the Lecturers and Assistants as a body should receive leave of absence for military service but the Court would consider each individual application for such leave of absence as it arose.[93] And so the problem of providing the country with an immediate group of medics compared with this group training medical men for service within a year or two was temporarily solved.

In May 1915 the Principal reported that Dr. Duff, Secretary of the Appointments Committee, had approached many firms engaged in armaments work with a view to employing University students or graduates who were ineligible for active service, in the manufacture of munitions. Most of the firms had agreed and within a few days 140 students had applied. More were expected to apply 'next week, when the Arts classes close.' The Court expressed its thanks to the students.[94]

On another occasion the Finance Committee drew the attention of the Court to the fact that owing to the absence of Lecturers and Assistants on military service, a considerable amount of extra work had devolved to other staff during the last academic session. The Finance Committee therefore recommended that the Court should record its indebtedness to these members of staff for their assistance 'at this critical time.'[95] The Court agreed and through the heads of the departments concerned offered its grateful thanks to all members of staff concerned.[96]

By July 1915 the Principal was able to report that over 200 students, other than engineering students, were engaged in the munitions factories of Glasgow and neighbourhood.

> They are working 12 hours a day in 24 different establishments, and very encouraging reports have been received of their efficiency. Some 200 more have registered their names with Dr. Duff for similar work, and places are being found for them in the same establishments and others. There is every prospect that in a very short time the whole number of over 400 will be employed as whole-time workers in this national service.[97]

The University, at the instigation of Professor John M Munro Kerr, Muirhead Chair, became actively involved in the recruitment of men for the Territorial Army. During a Senate meeting Professor Kerr moved:

> That in view of the gravity of the situation and the urgent call in this city for 10,000 recruits for the Territorial Force Third Line, the Senatus make a public pronouncement urging students to give the question of military service their most serious consideration.

The Senate agreed with the Professor and a committee was appointed to draft a proclamation urging students to take up military service. The proclamation was to be exhibited on public notice boards of the University and in the local press.[98]

Later in the year the University once again decided to encourage students to join the Services. Lord Derby's 'Scheme' had been published and the University considered the concessions available under its terms should be brought to the attention of the students. All men of military age had been called to service but all students who enlisted before 4 December 1915 would, at their own request, be transferred after one day's service to Section B Army Reserve, which would entitle them to continue attending their classes until the group in which they were placed was called up for service. Before being called up they would receive one month's notice in the press.

It was discussed by the Senate that many students enlisting under the Scheme might be able to qualify for their class tickets before being called up. Moreover, the students

would have some say as to which unit they wished to serve in. These concessions were available only to anyone enlisting up to 4 December 1915.[99]

Care was taken by Glasgow and other educational establishments that no undue advantage should be gained by those people not on active service over those who were. All prizes, medals, scholarships and bursaries were put into abeyance until the War was over. In place of prizes, certificates were issued instead.[100]

The University of Liverpool made its position concerning the employment of staff during the War very clear. In 1916 it wrote to Glasgow stating that the Council of Liverpool University had passed the resolution that future male candidates of military age for appointment to teaching posts in the University must provide a written statement detailing service with the Forces; the date of offer of service or attestation prior to the Military Service Act and reasons which led to the postponement of or abstention from service if such occurred.[101] Liverpool was making it quite clear that no advantage was to be gained by any man who did not go without reason, or attempt to go, into HM Forces.

In addition to trying to educate a depleted student population with an equally depleted teaching staff, the University adapted its laboratories and workshops to government work. The engineering workshops of the University carried out many tests on metals for the Government. Following an approach by the Admiralty the University undertook to machine from materials supplied, tensile and compression test pieces to Admiralty specifications and to carry out the mechanical testing of such pieces. The test pieces were specimens of steel used in shell-making in the district. The charge for such work was five shillings (25p) per tensile specimen and one shilling and six pence (7½ p) per compressive specimen. The large difference in price between a tensile test piece and a compression piece was due to the difference in the design of each; a 'dumbbell' shape for the tensile compared with a simple cylinder for the compression.

The University undertook to deal with not less than three tests daily if required and to have the pieces prepared within 48 hours of receipt of the material. The agreement could be cancelled at a week's notice on either side. The Principal reported that

Professor John D Cormack, Chair of Civil Engineering and Mechanics, had arranged for the work to be supervised by Mr. T B Morley, Lecturer in Engineering.[102]

It was a profitable venture, as was other testing, both for the individuals doing the work and for the University. In 1916 Professor Cormack wrote to the Principal suggesting that out of the £300 profit from tests on steel for the Admiralty in the engineering laboratory the staff should receive shares in the following proportions: Mr. Harry Bamford £70; Mr. R M Brown £40 and T B Morley £20. The Court approved.[103] Later in the year a letter from Professor Cormack showed the balance sheet for Admiralty steel testing carried out between 1 March and 31 August. There was a profit of £332 and Cormack suggested that Harry Bamford should receive £100 and R M Brown £20. The Court approved.[104]

Eventually, testing for the Admiralty within the University ceased. In 1917 the Admiralty intimated that it was arranging for its own machine to be installed elsewhere and University testing would then stop. Leave of absence granted earlier to Mr. R M Brown had meant the Admiralty had already been supervising the tests using University staff.[105] The University received a letter in July 1917 from HM Assistant Inspector of Steel stating that the Admiralty had installed its own machine at Alexandria and its contract with the University would terminate 14 July 1917.[106] The Court Minutes stated that the Admiralty tests would terminate 31 July 1917 but the Ministry of Munitions wanted the University to continue doing tests for them.[107]

Mr. Harry Bamford, Lecturer in Engineering Drawing and Design, still continued to do work within the University for the Admiralty. In January 1918 he reported to the Court that he had carried out a series of tensile and compressive calibration tests on two connecting rods taken from a torpedo boat destroyer. The Court approved his suggested fee of five guineas (£5.25).[108] Further reference to these tests show that the work carried out was for the Director of Naval Construction on HMS Scimitar.[109] Unfortunately, Mr. Bamford was taken seriously ill in August 1918 and testing he had been doing for the Ministry of Munitions and Trench Warfare Department was to be done by others under the supervision of Government Inspectors.[110]

The Chemistry Department was also involved in war work. The Principal stated that the Metallurgical Chemistry Department, at the request of the Royal Society's War Committee, had carried out work. Dr. Desch, assisted by six other chemists, had manufactured certain compounds required for military and other national purposes. Ever business-like, it was added that an account of income and expenditure was being kept with the Department and the University would not suffer any loss.[111]

Dr. Desch was also involved in the microscopical examination of aeroplane parts for the Aeronautical Inspection Department. Each examination cost one guinea (£1.05). The University had incurred costs of £8 but had received £59-17-0d (£59.85). It was recommended that Dr.Desch should receive £40 of this money with the remainder going to the University.[112] It is worth noting the high proportion of the fees which went to the individual concerned with the work. For instance, Dr. Desch retained £40, or almost two-thirds, of the total fee paid by the Aeronautical Inspection Department to the University. A perusal of the other fees detailed above will reveal a similar high proportion retained by the individual.

Professor Andrew Gray reported to the Court that he and Dr. James G Gray were engaged in the solution of war problems for the Admiralty and hoped the work would soon be completed.[113] James Gray, later to be the first occupant of the Cargill Chair of Applied Physics, 1920-1935, was the son of Andrew Gray, Professor of Natural Philosophy, 1899-1924. It was written that James Gray excelled in the invention of mathematical applications of gyroscopes, such as mechanisms to counteract precessional motion and stabilising devices. James Gray's success in this work during the War resulted in an award to him of £4 000 by the Commission on Awards to Inventors. His apparatus for finding and maintaining the true vertical in aeroplanes and airships was adopted for bombing purposes in 1917.[114]

Professor Gray informed the Court that in order to prevent the work being interrupted the Admiralty had ordered that those involved in it should be exempt from recruitment to HM Forces. The Professor also reported that the Government had taken over all the optical instruments and appliances held throughout the country and he had been asked to undertake two-thirds of the optical testing required in the west of Scotland.

In carrying out this testing he was helped by Drs. Houston and Allan and other assistants. The Court replied that it was pleased to hear of the important work which was being carried out in the Natural Philosophy Department and approved of the testing being done.[115]

In addition to actually carrying out work for the Government, the University also made rooms available for Government use. In 1916 the Government Inspector of Steel asked for two rooms in the Chemistry Department, one to be fitted out as a laboratory and the other as a Balance and Carbon room. Any alteration would be carried out at Admiralty expense. The Admiralty would provide the chemist in charge with some women graduates of the University engaged by the Admiralty as assistant analysts. Dr. Desch was also involved in the project.[116]

Later in 1916 the Principal reported that he had been asked by the Admiralty to supply accommodation within the University for a store room and a testing room for compasses where these instruments could be proved before being sent to ships on the Clyde. The rooms were to be under the control of a naval officer attached to the staff of the Superintendent of Compasses, Mr. Wrigley, who was the Assistant Astronomer Royal for Scotland. Ever-helpful Professor Andrew Gray offered two rooms in the Natural Philosophy Department and said that himself and Dr. Gray would assist in any way they could. A room for watches and chronometers, also for the use of Clyde ships, was also sought.[117]

In 1918 a letter was received from the Secretary of the War Office conveying the thanks of the Army council to the University for delivering courses on Military Hygiene to army personnel. Professor Noel Paton, Physiology, had delivered the lectures and he was asked to lecture again to the Medical Officers of the Scottish Command.[118]

The University Minutes abound with references to members of staff being granted leave of absence not only to serve in HM Forces but also to take up Government and other posts. A letter from Professor Rait, Scottish History, dated 23 March 1916, reported that the War Trade Department had asked for his full-time services. The

Court agreed.[119] The following month the University received a letter from the Director of the War Trade Intelligence Department expressing his thanks to the Court for releasing Professor Rait for war work.[120]

In July 1916 Professor Rait applied for further leave of absence. He suggested that Miss Theodora Keith be appointed Temporary Lecturer at a fee of £100, to be paid out of the accrued income of the endowment which financed the Chair of Scottish History. Professor Rait informed the Court that after 1 October the War Trade Intelligence Department, where the Professor was working, would pay a 'small salary' which he intended to return to the University. Leave of absence was granted.[121]

The following references give an indication of the scope of staff activities in various spheres. Leave of absence was granted at different times to many members of staff. Dr. G H Clark, Weir Assistant in Materia Medica, was granted leave of absence for special duty in connection with Gas Defence Measures.[122] Mr. A H Charteris, Lecturer in Public and Private International Law, for the summer term, in order to give full-time assistance to the War Trade Intelligence Department and to Mr. J H Jones, Lecturer in Social Economics for summer-term help at the Ministry of Munitions.[123] The case of Mr. Jones is very interesting. In October 1916 he applied for an extension to his leave of absence. This was granted provisionally by the University Court. He was allowed to continue working at the Ministry of Munitions only on the understanding that he provided an honorarium of £25 to Professor Kydd who had agreed to teach the classes normally taught by Jones. This condition was agreed to by Jones.[124]

In February 1917 Jones once again applied for an extension to his leave of absence and again it was granted, on the same terms as before. Jones stated that he was prepared to pay Professor Kydd £25 for the winter term and £15 for the summer term. The Committee approved and directed that the Factors should be requested to pay Professor Kydd at the above rate out of Mr. J H Jones's salary.[125]

Mr. Charteris was granted an extension on the understanding that, in the event of there being a class in his subject during his absence, he would arrange for its conduct by Mr. Roderick M Nicol. Although not explicitly stated whether or not Charteris had to pay

Mr. Nicol's salary this appears to be implicit in Charteris having to 'arrange for its conduct.'[126]

On another occasion the University demurred at paying a salary increase to a member of staff. In January 1917 Professor Noel Paton wrote to the Court recommending that his assistant, Alexander Watson, be granted a salary increase. After discussion, the Court agreed that it could not increase Watson's salary over the present maximum of £150 per annum but it was decided to allow Professor Noel Paton, as from 1st January, a sum of £25, in addition to the £25 already granted for general administrative assistance, and that he might from the increased allowance make such a grant to Mr. Watson as might be suitable.[127] In other words, if Professor Paton wished to increase the salary of Watson then he was at liberty to do so from his allowances. The University would not add to its salary bill with all the attendant additional benefits this could lead to.

Professor Sir J H Biles of the Naval Architecture Department wrote to the Court to say that the work of the Department was being modified. The prime reason for the changes was because he was engaged on war work and his Assistant, Mr. A M Robb, was an Instructor at the School of Instruction for young officers with the University's OTC.[128]

Sir J H Biles was frequently mentioned in the Camera Minutes of the University Court and he seems to have been a gentleman with exceptional talents. A brief mention was made in October 1916 to the effect that he was unable to be present in the Naval Architecture Department 'on account of Admiralty work.'[129] In April 1917 Professor Biles offered to return his salary of £202-10-0d (£202.50) which he was due 31 March and would do the same again at the end of June and September. The Court agreed.[130]

Mr. Robb, Professor Biles' Assistant, following his duties with the University's Officer Training Corps decided to move further afield in order to help the war effort. In 1916 he was granted leave of absence to take up duties in Mesopotamia in connection with the construction of ships.[131] Unfortunately, later in the year he was invalided home.[132] Due to the unavailability of staff in the Naval Architecture Department it was decided

in November 1916 to recommend students to enrol in those classes at The Royal Technical College. However, Robb was at that time home on sick leave from Mesopotamia and undertook to advise students with regard to their reading.[133]

By choice, Professor Rait did not receive allowances due to him from his employment. He returned them to the University. However, in 1917 he submitted a request to the Court that he may be allowed to give to the Government the allowance he presently received for his work in the War Trade Intelligence Department. The Court agreed.[134] This appears to be another case of the University bearing an additional cost of the War. And yet, being patriotic, the University readily agreed to Rait's request to give his additional salary to the Government instead of to itself as formerly.

The Court received a letter dated 25 August 1917 from the Prime Minister's Secretary, War Cabinet Office, 2 Whitehall Gardens, London asking for the services of Sir Henry Jones to be continued. The Secretary explained that the South Wales coalfields were badly disturbed. The claim was made that the Miners' Federation was in the 'hands of young men with extreme syndicalist views' who threatened serious industrial upheaval. Sir Henry was required to give an extended series of addresses the following winter in the mining villages.[135]

Continued leave of absence was granted. The Prime Minister must have had great faith in the oratorical powers of Sir Henry if he believed that a series of 'addresses' to the miners would quell real or potential unrest. During 1915 Sir Henry had been in his native Wales undertaking work under the control of the Parliamentary Thrift and Recruiting Committees. In December 1915 Sir Henry wrote to the Court, reporting on what he described as successful work. He also stated that he hoped to return to Glasgow before Christmas.[136] In the month preceding Armistice Day, Sir Henry was granted further leave of absence in order to go to the USA as one of a number of delegates from British universities; the trip having been arranged by the Ministry of Information.[137]

Further leave of absence was granted to Mr. Charles Cochrane, Assistant to the Professor of Natural Philosophy and to Andrew Gray to take up work at the Ministry

of Munitions.[138] In 1917, Court Minutes indicated that Cochrane, who was then employed at the Munitions Inventions Department Research Laboratory in London, was to have his leave extended.[139]

Professor John W Gregory of the Chair of Geology, in order to assist at the Air Board, was granted leave of absence.[140] His leave was extended in 1918 when the India Office asked for his services to complete his work on the Calcutta University Commission. Details of proposed locations he was to visit were given in the Minutes.[141]

Professor Gilbert A Davies, Chair of Greek, left to take up a post as Administrator of the Wounded Allies Relief Committee's Hospital at Vodena, near Salonika.[142] Before he left he recommended to the Court that the work of the Department of Greek should be entrusted to Mr. Rennie, with assistance given to him to mark written work. In order to make this arrangement operable, Davies proposed that the non-qualifying class, attended by only two students, should be suspended and that the intermediate and honours divisions, totalling seven students, should be united. Professor Davies mentioned that his services to the Relief Committee would be unpaid, but he proposed, nevertheless, to return to the University £250 from his year's salary in order to provide for the extra remuneration of Mr. Rennie and the necessary assistance that would be required to help with marking work. These educational arrangements had been approved by the Senate and the Court agreed to grant Professor Davies the necessary leave of absence and approved of the arrangements proposed by him for carrying on the work of his Department.[143]

The leave of absence of Dr. J D Falconer, Lecturer in Geography, was extended. He was already in Nigeria acting as the Temporary Assistant District Officer.[144] In October 1917 the Colonial Office wrote to the University requesting that Dr. Falconer should be allowed to return to Nigeria for another tour as Assistant District Officer. Dr. Falconer also wrote asking for continued leave of absence.[145] Because of Falconer's sterling work, the Colonial Office wrote from Downing Street in May 1918 requesting his services for three years in the post of Geologist. He was already serving as Assistant District Officer in the Northern Province of Nigeria. Leave of absence was granted.[146]

Professor William B Stevenson, Chair of Hebrew and Semitic Languages, was granted leave of absence to work in the Admiralty Intelligence Department, London.[147] The Reverend T H Weir was allowed by the Court to go to France on behalf of the Young Men's Christian Association (YMCA).[148] Both at home and abroad the YMCA played an active part in the war. In 1917 the organisation sent the University a Draft Scheme detailing educational work to be carried out under their direction in munitions areas in Britain. They sought the cooperation of the University in the work. The Scheme was remitted to Professors Robert Latta, Logic and Rhetoric, and Dudley J Medley, History, for their opinion.[149]

When they reported, the Professors were of the opinion that the YMCA idea was good but the University could be of only minimal help because of staff shortages. Any teaching which took place would mainly be in the large English munitions areas under the control of the English Board of Education. This would cause travel problems for University staff. Occasional, single lectures in the neighbourhood of Glasgow could be accommodated, otherwise, it was reported, the initiative for such work should be left to the Scotch Education Department, local YMCA, War Aims Committee or 'some other centralised committee.' The Senate approved the Report.[150]

Professor Medley had further contact with the YMCA and also with the War Aims Committee. He reported to the Senate that the YMCA was anxious to start lectures in the area and had sought his assistance in carrying out their work. The Senate appointed Professor Medley and the Clerk to the Senate, Professor George Milligan, Biblical Criticism, 'as a small committee to attempt to secure the necessary lecturers.'[151] Another person to take up employment with the YMCA was Mr. James Robson, Assistant to the Professor of Hebrew. On this occasion Mr. Robson did not ask for leave of absence but chose to resign from the University in order to work for the YMCA amongst the troops in Mesopotamia.[152]

The Principal stated that he had received a copy of a circular, signed on behalf of the YMCA Educational Committee and the War Office Lecturers Committee regarding the delivery of lectures to the troops behind the lines in France. The circular claimed that troops, in addition to wanting entertainment and recreation, would welcome the

increased provision of lectures of a more solid and thoughtful character.[153] Consequently, the YMCA, at the invitation of the War Office, had undertaken to organise lecturers to visit suitable centres in France for periods of stay varying from two weeks to over three months. As a result, offers were now invited from university staff members to deliver such lectures. The Principal stated that he had sent a copy of the circular to each member of the teaching staff and on his suggestion it was agreed to grant leave of absence to any member of staff who volunteered to go to France. The University Court agreed that any staff member who wanted to participate in the programme would be granted leave of absence.[154]

One prominent member of staff who applied for leave to participate was Professor Medley. He wrote to the Court for leave of absence 'in order to keep (sic) the big educational scheme which is being launched among our troops.'[155] Leave was granted for the duration of the War. In 1916 Professor Medley had been appointed the University representative on the Glasgow Territorial Force. Obviously his leave of absence would entail resignation from this post.

As part of the effort to win the war some equipment was requisitioned from the University by certain organisations. For example, a molecular pump, part of the apparatus in the Natural Philosophy Department, was requisitioned by the 'authorities' and lent to the Comptroller of the Munitions Inventions Department. An astro-photographic lens in the Observatory was lent to the War Office.[156] The Chemistry Department lent four chemical balances to the Directorate of Chemical Inspection.[157]

The American Historical Association wrote from London asking the University to allow an American historian to give a public lecture in the University. The early months of 1918 were suggested as suitable and the topic was to be the entry of the USA to the war. Arrangements had already been made for the historian to speak in the University of London, the University of Manchester and other venues. The letter stated that at that time they could not name the lecturer but assured Glasgow that he would be prominent within his field. The letter was signed by Arthur Percival Newton, Secretary of the London headquarters of the American Historical Association. The

Court agreed to the request and stated it would be pleased when the name of the lecturer and the date of his visit were known.[158]

Another proposed visit was by French university professors. They were in Britain to assess how universities were being affected by the war. Arrangements had already been made for the group to visit Oxford, Cambridge and northern English universities. If possible they wanted to visit Scottish universities and the Court agreed to this.[159]

A letter from Mr. William Weir of Glasgow Town Council was received by the Principal. Enclosed was a letter from the Ministry of Munitions of War promising £2 500 to establish a Lectureship in Russian. One of the conditions of the grant was that the lecturer appointed would also have to spend some time lecturing in the Commercial College, Glasgow.[160]

The following January the Principal advised the Court that he was actively seeking a lecturer in Russian and had written to Mr. Hugh Brennan, presently lecturing in Petrograd, offering him the post.[161] In April the court was informed that Mr. Brennan had written c/o the British Embassy, Petrograd, accepting the position of Lecturer in Russian at the University and the Commercial College.[162]

In a lighter vein, but still very much concerned with helping the war effort, the University Court received a letter from the Athletic Club asking permission to cultivate two unused acres of the Athletic Ground at Anniesland. The Club suggested that they would either do it themselves or let it out in plots to people of the neighbourhood. The Court agreed but stipulated that the Club had to organise it and there was to be no expense to the University.[163]

Finance and the saving of money was very important to the University at all times and especially in war time. In April 1916 the Principal appealed to the Library and Museum Committees to save money by cutting down on expenditure.[164] It had already been decided that there was to be no expenditure in 1916 on a Commemorative Service in the University.[165] The War had, of course, caused a tremendous loss of income from student fees as numbers fell. At the start of the War, on account of the

loss of fees, the Principal had appealed to all Heads of Departments to keep expenditure down, providing efficiency was not sacrificed.[166]

With regard to loss of income from student fees, the University applied to the Treasury for a special grant. A circular from the Treasury, dated 25 July 1915, had informed the University that a special supplementary grant of £145 000 was available to be shared by certain institutions during 1914-1915.[167] This special grant, when received, amounted to £9 500 and was made to cover the years 1914-1915 and 1915-1916.[168] The Lords Commissioners of the Treasury would decide if the grant was to continue in future years. Another application to the Treasury for a special grant in respect of lost fees was made in 1918. The University estimated that its total losses since the commencement of war as being £50 000.[169] One question before the Treasury was whether or not all institutions were to remain open with such very low student numbers. The cost was a burden on public funds and could be out of proportion to the comparatively few students being educated.[170]

Records seem to indicate that Glasgow was not suffering financially to the same extent as the University of Edinburgh. In April 1916 a letter was received by Principal MacAlister from Edinburgh saying that it had received almost no financial aid for the current financial year from the Treasury and 'meanwhile it will be difficult for this University to carry on until after 31st March, 1917 without being forced to borrow, which at the present time is a costly proceeding.'[171] In order to obtain financial relief Edinburgh suggested borrowing from the Carnegie Trust. However, in order to improve its chances of receiving money from this source, Edinburgh suggested a joint approach to the Trust by the Scottish universities. Continuing, the Secretary of Edinburgh's Court stated that as the University was without a Head, he had been requested to ask Glasgow to convene a meeting of Principals, with a representative from Edinburgh, to consider the whole matter for the guidance of their respective Courts.[172]

During discussions, Glasgow's Court came to the conclusion that it was not so short of money that it needed to borrow from the Carnegie Trust and that they could see no reason for taking joint action. In keeping with the spirit of cooperation that more often

than not percolated the relationships between the universities of Scotland, Principal MacAlister asserted that he was ready to convene a meeting to ascertain the views of the other universities regarding the need to approach the Trust.[173] Table 4.1 shows the income and expenditure for the years 1913-1914 to 1918-1919. It should be noted that the financial year 1918-1919 includes post-war statistics. During the year when the Court decided it did not need to borrow money from the Carnegie Trust, April 1916, the University was to declare a surplus of £2 100.[174]

TABLE 4.1. UNIVERSITY OF GLASGOW REVENUE AND EXPENDITURE 1913-1914 TO 1918-1919

Year	Income	Expenditure	Surplus	Deficit
1913-1914	99 834	102 807	nil	2 973
1914-1915	94 210	96 181	nil	1 971
1915-1916	93 001	90 901	2 100	nil
1916-1917	85 889	89 208	nil	3 319
1917-1918	92 048	91 283	765	nil
1918-1919	124 774	109 617	15 157	nil

Source: UGGC Mins ref. DC 183/3/3 and DC 183/3/4
Note: All amounts in £ Sterling

Perhaps there were other reasons behind Edinburgh's approach to Glasgow for cooperation in dealing with the Carnegie Trust. Despite the fact that the previous year Edinburgh had declined to attend a proposed conference to discuss a draft ordinance on the proposed University Preliminary Examinations, Glasgow was now amenable to Edinburgh's wish to convene a meeting of the four Scottish universities. In 1915 Glasgow had made changes to the proposed Preliminary Examinations Draft which Edinburgh thought were not important enough to warrant the delay another meeting between the four institutions would cause.[175] Edinburgh expressed the opinion that any ordinance must be a compromise between the four universities and it would not be possible to equally satisfy all of them. In the opinion of Edinburgh's Court, Glasgow had not submitted anything which had not been before the last conference of representatives of University Courts.[176]

Continuing, Edinburgh wrote that it was going to approve the draft not because it agreed with every line of it but because it believed it was a reasonable settlement of a difficult question. Already discussions of the problem had been too costly of time and

labour and 'any attempt to alter it in any serious way will lead to endless delay and to the wearisome round of conferences, references, representations from various bodies etc.'[177] In conclusion, Edinburgh urged Glasgow to stop calling for amendments which appeared unnecessary 'and which will certainly play into the hands of those who have desired all along to wreck the draft Ordinance and to thwart the reforms which it desires to effect.'[178]

Despite the strongly worded letter, which was in effect a snub to Glasgow, the Court of the University still dealt magnanimously with Edinburgh in 1916. At the same meeting which had dealt with the request from Edinburgh to seek financial aid from the Carnegie Trust, Dr. Murray moved that the following Minute be entered in the records of the Court:

> The University Court have heard with pleasure of the tribute recently paid to Sir Donald MacAlister by a sister university in inviting him to become its head, and at the same time they desire to express their gratification that he did not accept the offer, but still occupies the position of Principal of this University, and to record their appreciation of the valuable services which he has rendered in that office. Under the able administration of Sir Donald MacAlister the University of Glasgow has maintained its ancient reputation, and has expanded in every faculty and particularly in the Faculty of Medicine, which attracts students from every quarter of the globe. The Court take the opportunity of thanking the Principal for the good work which he has done and of wishing that success may continue to crown his efforts for the welfare of the University.[179]

Dr. Lorimer seconded the Minute and the motion was carried. Although the 'sister university' was not identified it was certainly Edinburgh because it was the only Scottish university without a Principal at the time.

As the War continued through 1917 a number of former students returned to Glasgow because of invalidity or other reasons. This ever-increasing flow persuaded the University to compile a list of those demobilised who required entry to courses.[180] This same year the Ministry of Munitions wanted to send convalescent officers for instruction in technical subjects during the period they strove for full fitness and health. To help with staff shortages, the Ministry offered to send officers with previous

engineering experience to be trained as instructors. After discussion, the Senate agreed to offer all the facilities of the Engineering and related Departments to these officers.[181]

The Clerk of the Senate reported in February 1918 the results of an interview he had had with Captain Young on behalf of the Munitions Department in connection with the proposed Officers' Technical Training Classes. The Senate reiterated its resolve to offer all facilities in their power for carrying out this work.[182] The generous offer of the Senate to provided full facilities in Engineering and related departments for officers met a stumbling block in the form of the Science Department. The Dean of the Faculty of Science could not make any recommendation concerning the training of discharged officers. However he stated that if the University officially asked the Faculty to take part in a conference on the subject of officer training it should do so.[183]

Taking the matter further, the Faculty of Science submitted a Report regarding the position of students returning from war service. The Faculty thought that the Scottish Universities (Emergency Powers) Act, 1915 did not give the University the power to relax or alter the conditions upon which the B Sc degree was granted. The Faculty recommended that a new Order in Council be made to deal with returning students.[184]

What action to be taken with returning students occupied a lot of the time of the departments at the latter end of 1918. For example, a memorandum was received by the Senate from the Faculty of Medicine concerning the large increase in student numbers.[185] Reports were received from the Faculties of Arts and Science with reference to the position of students presently on war service but who were due to return after the commencement of classes.[186] With regards to this problem it was to be at the discretion of the Professors whether or not to allow students returning from war service to enter classes already in progress.[187]

In October 1918 a letter dated 9 August was received from the Ministry of Labour concerning arrangements for the eventual demobilisation of members of HM Forces. An Officers' University and Technical Training Committee had been established in regard to training courses in England and Wales and the same was proposed for Scotland. The Universities of Glasgow and Aberdeen were asked to cooperate by

sending one representative each to serve on the Committee. Principal MacAlister thought that as there were four universities in Scotland it would be better if each university sent one representative each. This recommendation was transmitted to the Ministry of Labour.[188]

The Employment Department of the Ministry of Labour wrote to the University in February 1918 as a first step to establishing an Advisory Committee for Juvenile Employment and inviting the University to appoint a representative to the Central Advisory Committee created to coordinate the work of the local committees. The Court agreed and appointed Mr. J Bruce Murray, Court Assessor appointed by the Town Council.[189]

Early in 1917 the circumstances of student prisoners of war were discussed in the Faculty of Arts. The Faculty considered a letter from Professor Gilbert A Davies of the Department of Greek to the Principal, accompanied by a document showing the progress and present condition of educational work among British prisoners of war interned in enemy countries. The document pointed out that many British prisoners of war had made great efforts to follow systematic courses of study and that arrangements were in existence for recognising the work done by them and in some cases examining them. Certain bodies were prepared to recognise 'in a liberal spirit' any work done or examinations passed by such prisoners whilst in captivity. It had also been agreed that returning ex-prisoners could apply to be examined in specific subjects and this should be arranged without delay and in a manner suited to their circumstances.

The document was discussed and it was stated that the University had already agreed to take account of Preliminary Examinations held in the prisoners' camps, providing the Joint Board was satisfied. Regarding degree courses in Arts, the Faculty indicated that it was prepared to consider sympathetically any evidence of regular study at Rublebeau or other camps, produced by a student of the University.[190]

In March of 1917 the Faculty of Arts discussed the War Prisoners' Aid Scheme run by the YMCA. This was a scheme to further the education of German university men

who were prisoners of war in British camps. Members of staff of British universities were invited to direct the studies of these prisoners, lend them books, examine them and give certificates to those whose work was satisfactory. Without any reason being given, perhaps none was necessary, the Faculty recommended that no action should be taken in the matter.[191]

During the hectic years of the war and the extraordinary actions that had to be taken by the Principal and his staff in order to keep the University functioning as smoothly as possible, one must not forget the more mundane matters that had to be attended to. For example, in 1915 a disciplinary matter was brought to the attention of the Works Committee of the University Court by the Master of Works. The matter started with the dismissal of the night watchman, Lewis Docherty, a discharged soldier, for unsatisfactory conduct. Following his removal there was a need for someone to take his place and the Master of Works asked a gardener, Joseph Budge, to do the night watchman's job. Mr. Budge refused on the grounds that he had been employed as a gardener and he would only do such work. It was explained to him that joiners, painters and others often did work outside their own sphere willingly in order to help out in the difficult situation then prevailing.[192]

In an effort to clarify the situation to the Works Committee, the Master of Works explained that Budge had been working at the University for nine years and had reached his maximum wage of 30/- (£1.50) per week. The gardener had frequently asked for a wage increase and these had always been refused, much to the dissatisfaction of Budge. Explaining the reasons for the refusals the Master of Works stated that he had spoken to the Head Gardener of the West End Park concerning the wages and conditions there. He was told that a gardener received 26/- (£1.30) per week and the Foreman Gardener 29/- (£1.45). Moreover, the conditions at the Park were not as good as those at the University.[193]

Probably realising that he had made a mistake in his stance against taking the night watchman's job, Budge wrote to the Secretary of the Court saying that he was willing to do the job or any other duties allotted to him, and asking for reconsideration. After hearing a statement from the Master of Works regarding his relations with the gardener

in respect of discipline, the Committee came to the conclusion that Budge should not be reinstated. After discussion, the Works Committee agreed that in future, when a servant was reported for indiscipline 'the Convener should give such servant the option of immediately leaving the service of the University, or being suspended without wages until the Committee meets to consider his case.'[194]

Another point of discussion which took many hours of the University Court's time was the matter of adding a clock to the tower of the University. The clock which presently adorns the tower was not initially a part of the structure but was the inspiration of one Major John Garroway who offered to present to the University an electric clock. The adding of the now-famous clock to the tower was by no means a unanimous decision and there was much disagreement and acrimony before it was eventually added.[195]

Numerous other items of business appeared before the Court during the war years Several of the items involved discussion, collaboration and cooperation with other bodies or teaching establishments. The University entered into discussions with Glasgow Corporation when it opposed the Glasgow Corporation (Tramways) Act. The opposition took place when it became apparent that tramlines were to be laid along University Avenue.[196]

Discussions between the University and the other three Scottish universities took place on several occasions on subjects which touched all of them. For example 'Report of Committee on the Status and Conditions of Service of Lecturers and Assistants';[197] 'Report of Committee on Preliminary Examination Ordinance';[198] 'Institution of a Degree in Science in Applied Chemistry.'[199] Agreement had to be reached between the Scottish universities before the Robert Marshall Bequest to establish 'The Marshall Chair of Modern Languages' could become operational.[200] Preparing for the end of the war, at the beginning of 1918 the University of Aberdeen requested the opinion of Glasgow on a proposal to offer free University education to children of graduates killed in the war.[201] The Court agreed to consider any practical suggestions on the subject by Aberdeen.[202]

Cooperation between the British and Empire universities was sought by the Universities Bureau of the British Empire through the medium of a conference, to which Glasgow was invited to attend.[203] A meeting was also planned between the four universities of Scotland and the Carnegie Trust when the Trust intimated that it was considering establishing a pension scheme applicable to Lecturers and Assistants.[204] And in order to keep abreast of events in other Scottish universities, the University Secretary was instructed to write to the Secretary for Scotland asking that copies of the financial and statistical reports of the other Scottish universities might be provided for use of the members of the Court.[205]

A final example of business attended to is a letter from the Institution of Engineers and Shipbuilders in Scotland, dated 19 April 1917, asking for collaboration with the University in the testing and analysis of engineering products after the war. Instead of erecting new buildings it was suggested that a branch of the National Physical Laboratory (NPL) be sited in either the University or the Royal College. The tests would be carried out in either of these establishments but be endorsed by the NPL. Acknowledging the quality of plant and personnel to be found in Glasgow the letter, in part, read:

> The Council are, however, of opinion that it would be out of place to erect a separate building and machinery in view of the existing plant and skilled experimenters to be found in the laboratories of the Colleges in Glasgow.[206]

And so the war proceeded with the University coping to the best of its ability, utilising staff, facilities and expertise to continue classes and help the war effort and at the same time preparing for the future when the War was over. The Royal Technical College was affiliated with the University and its experiences were in many respects complementary to those of the University. These are dealt with in the next section of this chapter.

But as the war came to a conclusion in November 1918 it was time to remember the fallen and thank them for the ultimate sacrifice. The war had taken a terrible toll of lives as the statistics show. Out of an enlistment of 4 417 a total of 742 had lost their lives. The fallen represented 17 percent of those who had served in the forces.

TABLE 4.2. UNIVERSITY OF GLASGOW ROLL OF HONOUR 1914-1918

1. Roll of the fallen		742
2. General Roll of Service		
a) Commissioned Ranks		3 489
b) Non-commissioned Ranks		928
	Total	4 417
The General Roll includes the following:		
a) Teachers and graduates		2 267
b) Students and Alumni		1 507
c) Non-matriculated Cadets of the OTC		599
d) Clerical, Library and other Administrative Staffs		44
	Total	4 417

Source: *Glasgow University Roll of Honour 1914-1919 p. ix*

THE ROYAL TECHNICAL COLLEGE

The College could trace its origins back to 1796 and consequently by 1914 was an establishment with a large student population, highly qualified staff covering a wide range of mainly technical and scientific disciplines and an efficient institutional organisation.

Past and present students and staff members volunteered for active service, cooperating with the Glasgow Chamber of Commerce to provide the 'A' company of the 17th Highland Light Infantry, The Chamber of Commerce Battalion.[207] Many staff and students took an active interest in the work of the Officer's Training Corps and the Territorial Army and a large number were called up for service on the declaration of war, with several receiving commissions. The First Company of the 3rd Glasgow Battalion HLI consisted at this time of College Students exclusively.[208]

By mid-1915 it was claimed that the number of scientific staff on service was amongst the highest of the universities of the country. Consequently, in order to assess available manpower, the Governors compiled a list of members of the College on active service. The list contained the names of 357 officers, 225 non-commissioned officers, 824 men, 1 nurse and 3 others on special service, making a total of 1 410.[209] Student numbers were obviously adversely affected by the war. Statistical records show that the day student numbers fell from 669 in session 1913-1914 to 445 in 1914-1915. Over the same period evening student numbers fell from 4 342 to 2 583.[210]

The endeavours of the College to function as efficiently as possible following the declaration of war did not go unnoticed. A letter from the Secretary of the Scotch Education Department, dated 11 December 1914, expressed the Department's appreciation of the measures which the Governors were taking to effect economies in the maintenance of the College.[211]

The Annual Report for 1914-1915 commented that the outbreak of war made new and unprecedented demands upon the manpower and material resources of the College. While the prosecution of the College's work lost none of its importance, it was

recognised that every assistance possible must be given to the war effort. The well-equipped laboratories were placed at the service of the Government and the services of members of staff were offered for general scientific and testing work. 'It is thus a matter of great gratification that the College has been able so promptly and effectively to bring its organisation and influence to bear upon a new problem, and turn its energies for the public good into a new channel.'[212]

The Governors stated that they welcomed the opportunities for the direct participation in war work. Although they could not give details of the work being carried out they affirmed that the College facilities for the testing of metals, building materials and fabrics had been utilised by several sections of the War Office and the Admiralty with 'hundreds' of tests having been carried out.[213] It was reported to the Committee on Engineering that numerous tests of materials for certain Government departments had been undertaken in the engineering laboratories. As might be expected, the Committee approved of this work and authorised the Director to arrange for such other tests as might be required.[214]

J G Longbottom, Professor of Mechanics, had the remarkable attributes of high academic qualifications coupled with even higher practical skills. Longbottom turned his extraordinary talents to the solving of many mechanical problems. He did, however, in common with many staff, receive high financial rewards for his efforts. In September 1918 a sub-committee reported upon the Department of Mechanics and commented that Professor Longbottom received 'exceptional remuneration' arising out of the testing of war material and the sub-committee recommended the renewal for another year of the arrangement under which the Professor's share of testing fees was limited to a maximum of £200 for the year.[215]

Late in 1916 he presented a Report to the Committee on Engineering. This Report detailed the testing work authorised by the Committee in May 1915. The Report showed that the work had been grouped into three divisions. These divisions were work for:

1. The Aeronautical Inspection Department.
2. The Government Inspector of Munitions for the area.
3. Local firms engaged in munitions work.

The work in division 1 was further sub-divided into two groups:
(i) Tests relating to the structure of the aeroplane.
(ii) Tests relating to the aeroplane engine.

The Report explained that the work in (i) above was very complex and special apparatus had been designed and constructed in order to be able to carry out the work. Work tested in this sub-division included ties, wire ropes, different types of springs, timber struts and hemp ropes; in fact, anything related to the structure of the aeroplane was tested. These tests were in addition to the usual tensile and compression tests undertaken on bronze, steels, aluminium and other metals. Subdivision (ii) tests were chiefly compression and tensile tests on aeroplane engine materials. Division 2 tests were mostly on shells and shell parts.

The work done in Division 3 was similar to Division 2 but was carried out for local munitions workshops. The Engineering Department had averaged 1 200 tests per month over a six-month period to October 1916.[216] By early 1917 the Engineering Department was working at near-capacity and it was recorded that 'the testing of materials of great variety continues, and the number of tests carried out is usually near the full capacity of the available staff and the laboratory machines.'[217]

When reviewing the activities of the Engineering Department during the war the Chairman of the Governors, Sir George Beilby and the Director of the College, Mr. H F Stockdale, wrote in 1919 that the testing machines in the laboratory of the Department of Mechanics were in almost continuous use during the period of the War. Almost poetically they panoplied the tests performed. Tests were under tension compression, bending, torsion, hardness and impact on war materials of almost every kind, for shells, tanks, guns, bridges, aeroplanes, airships and motor lorries. Very interestingly they commented that as many as 22 000 tests were made in one period of twelve months. Although these tests were for the most part of a routine character they included many problems of design and construction and through Professor Longbottom, the College was glad to assist in their solution.[218]

The College did, however, find the staff and space to embark upon a long-term research programme. In mid-1917, the British Marine Oil-Engine Manufacturers

Association invited the College to undertake research work on cast irons suitable for oil engines. The Association was to bear all the costs of the investigation. It was agreed that the Association should pay the College £1 000 for the first year in respect of services of staff, wages of mechanics and the fee for the use of the laboratory. The charges would be reviewed in subsequent years. Because the Association was to meet all costs the results obtained were not to be published by the College without the permission of the Association.[219]

In the first months of 1916 there was a Report by the Director of the College to the Chairman's Committee detailing departmental war work. It showed that in the Chemistry Department every man available was engaged on the preparation of 'certain' drugs. No further details regarding drug type was given. Dr. Henderson was in charge of the programme, assisted by colleagues from other establishments: Professor Berry of the Agricultural College and two of Berry's staff; staff from Allan Glen's School and Dr. A J Robertson from 'Mr. Crystal's Works.'[220] In March 1916 Professor Longbottom attended a meeting in London of representatives of universities and colleges engaged in the manufacture of materials for the production of certain drugs. The meeting was convened by the Sectional Chemical Committee of the Royal Society.[221]

All staff of the Technical Chemistry Department were engaged on work connected with the Explosives Department of the Ministry of Munitions for the extraction of benzene and toluenel (sic) from coal gas. It was reported that this work had grown in volume and involved the chemical control of a considerable number of gas works throughout Scotland. Except for essential teaching hours, the whole time of Dr. Gray and his assistants was taken up with the project.[222]

Every major gas undertaking in Scotland was placed under the control of the College Department of Technical Chemistry by the Explosives Department. A supply of 'certain coal distillates' were required for the manufacture of explosives. To this end, the systematic analysis of tars was carried out until the armistice was signed.[223] A progress report in 1916 gave further details of the 'certain coal distillates' when it stated that '...since the beginning of the Scheme reports had been made on nearly

1 100 samples of Coal Tar, Crude Naphtha, Benzol, and Toluol.(sic)'[224] Following the Armistice, the Explosives Committee wrote to the professors who were successively in charge of the work, Professors Thomas Gray and G G Henderson, thanking them for their contribution to the programme.[225]

Research work was also carried out by the Technical Chemistry Department of the College for the Chemical Warfare Committee of the Ministry of Munitions. This work involved the improvement of respirators used as protection against various poisonous gases. Work was also carried out for the military in connection with the examination and testing of a chemical mixture for charging shells.[226]

In May 1918 Sir George Beilby, Chairman of the College Governors and also Director of the Fuel Research Board, asked for Professor Gray to be seconded to the Research Board for a period of 'two to three years'. The Professor was asked to take up the post of Organiser of the Chemical Division of the Fuel Research Station which was in the process of being established at East Greenwich. Professor Gray would retain his position as a professor in the College and be available as adviser in the conduct of the Department of Technical Chemistry. The secondment was recommended in the following terms:

> After consideration and recognising the advantages to the College and to Dr. Gray with his association with the important work of the Fuel Research Board, the Committee resolved to recommend that the services of Dr. Gray be lent to the Research Department as proposed.[227]

Professor G G Henderson took over the duties of Professor Gray in the College.

Large-scale testing work was carried out by the College on behalf of Government Inspectors who were supervising the manufacture of various goods of war in the Glasgow district. For example, in the Textile Department over 8 000 samples of aeroplane, seaplane and airship fabrics were tested for the Admiralty and the War Office. Additionally, a very large number of samples of textile material intended for war purposes were examined and tested for Government contractors. Mr. William Watson, Superintendent of the Textile Department, also acted as a Government Inspector of fabrics and materials manufactured by Scottish firms.[228]

Early in 1916 Mr. Watson reported to the Committee on Textile Manufacture that testing work for the Government had commenced on 24 March 1915 and since that date 519 aeroplane, seaplane, airship and tent cloths had been tested for strength and, as each cloth represented twelve tests, over 6 000 test pieces had been put through the testing machine. An unspecified number of tests had also been made for private firms.[229]

Some two months later Superintendent Watson presented his Report on session 1915-1916 to the Governors. Part of his Report showed that 641 tests of textile materials had been made: 596 for the War Office and Admiralty and 45 for private firms, involving approximately 6 500 samples passing through the testing machine.[230] The Report was obviously an up-date on the one he had presented in March to the Committee on Textile Manufacture.

At the end of 1917 the Textile Committee asked the Governors to enlarge the membership of the Committee by four. The request followed the 16 November meeting of the Scottish Chamber of Manufacturing Industries and the West of Scotland Textile Association. The object of the meeting had been to discuss the provisions being made in other parts of the country for textile research. The Governors agreed to cooperate with the manufacturers and in particular to take part in the national schemes of research which were being organised in the textile industries.[231]

During session 1917-1918 fewer tests had been made than in the three previous sessions. As in recent years the cloth and yarn tests were mostly for the Government and the reduction was mainly in tests of cloth for strength. Table 4.3 shows the number and type of tests performed over the period 1913-1914 to 1917-1918.

TABLE 4.3. THE ROYAL TECHNICAL COLLEGE, GLASGOW. TESTS PERFORMED IN TEXTILE DEPARTMENT 1913-14 TO 1918-19

TEST	YEAR					
	1918-19	1917-18	1916-17	1915-16	1914-15	1913-14
Yarn & Cord Tests	153	52	65	14	9	12
Cloth Tests	71	36	167	627	157	28
Total	224	88	232	641	166	40

Source: TRTCG Annual Reports for the sessions shown. SUA ref. E4/1/6[232]

Watson explained that not included in the table were a large number of experimental tests that had been made to ascertain the effect of strength and elasticity of cotton warp yarns under different conditions of sizing and that some interesting and useful information had been obtained. He also commented that as in previous years the department had provided information on yarns, cloth and mechanisms and during the session 35 special enquiries and visits had been recorded, compared with 39 during the previous year.[233]

One major undertaking by the College was the training of munitions workers and for this undertaking the engineering workshops were brought into service. At the request of the Ministry of Munitions and with the support of the local Munitions Committee and practising engineers, courses were established for the preliminary training of males and females who wished to be employed in munitions factories. It was hoped that the new classes would induce a large number to enter that field of work who might otherwise have been unable to do so.[234]

A sub-committee reported to the Committee on Engineering concerning the necessary arrangements for the training of munitions workers. To this end the sub-committee secured the cooperation of the Glasgow Board of Management for Munitions who, along with the Ministry of Munitions, approved of the College's course of centralised training. The Ministry also agreed to meet the expenses incurred by the College in setting up the training scheme. The College had only one lathe at the time but secured 39 others as detailed:

17 borrowed from twelve firms
12 borrowed from eight school authorities
1 borrowed from private individual
7 gifted from five firms
2 purchased
39 Total [235]

An advertisement was placed in the local press asking for volunteers for the full-time course. There was an exceptional response with over 700 applications 'within a few hours.'[236]

Operations began 18 October 1915 to train workers on the 40 lathes, with the course of instruction arranged to fit the workers for employment in shell-manufacturing factories. The Ministry instructed the College to present the successful trainees with certificates of competence. Over the period October 1915 to the end of August 1916, 611 Certificates in Turning were issued.[237]

Female applicants for the vacancies were interviewed initially by Mrs. Elizabeth Ross, Assistant Organising Officer of the Labour Exchange. After the initial screening by Mrs. Ross the College then interviewed the applicants, visiting the Labour Exchange once a week to do this. About half of the applicants were rejected 'usually because of physical disqualifications.'[238]

Employers were contacted by the College to secure places for workers at the completion of the course. With the help of the Labour Exchange there was no difficulty in placing women workers at this time. Men were not so readily employed and preference was eventually given to women applying for training courses. The difficulty in placing men trainees reached such a pitch that the Ministry wrote to the College asking them to recruit only women if this was possible.[239]

The main reason for this discrimination was the wage differential, with women receiving far less remuneration than men. It made economic sense for the employers to use an equally skilled but female workforce in place of the more highly paid male workers. Union antagonism to a diluted skilled workforce was present. Looking to the future, there was a real chance of wage rates being kept low for skilled engineering

craftsmen if there was a pool of semi-skilled labour available. Additionally, there was perhaps suspicion on the part of some employers about why a man was not serving in the Forces. This problem would hardly arise if female labour was employed. Once the War ended it was expected that the women would return to the home and the man of the house would be the wage-earner. Speaking in 1916 on the place of women in industry, Elizabeth Mitchell quoted the words of 'a certain noble lord' who voiced the common view that 'at the end of the war, surely the English woman will go back to her home?'[240] The Scottish women were also expected to follow suit.

Initially, the instructors on the training course were three members of the Engineering Department staff. This number proved to be inadequate so a former member of staff was recalled from military service to assist. To aid these men, three of the male trainees who had passed successfully through the course were retained as instructors. Up to 31 July 1916 the cost to the College for the installation of machines and the maintenance of the course had been £1 057-9-10d (£1 057.49p). This was reimbursed by the Ministry of Munitions.[241] Judging by employer response the course was a success and the Sub-Committee received many indications from employers that the College had been of great value, particularly when work was begun in the new projectile factories.[242]

Subsequently, modern machine tools were provided by the Ministry of Munitions, the depth of instruction was increased and the duration of the course was extended. Women were trained not only as lathe operators but also as fitters, machinists and oxy-acetylene welders in order to take their place in the dilution of labour scheme organised by the Government. The ready adaptation of the women to the training resulted in their ability to undertake successfully the highly-skilled, male-dominated branches of engineering work to the 'astonishment' of local employers who 'remained incredulous' until they had actually seen and tested the work produced by them.[243]

One woman worker who observed the inspection of a female's work by a man, expressed at a later date her feelings when she said of the event: '[I shall not forget] the sight of a certain great man of this city as he stood purring over a piece of exact and excellent work in steel done by a woman with little training.'[244]

Although this may smack of the 'Doubting Thomas' syndrome the employers' response should be seen in the light of the philosophy of the time. For the childbearers, the unpaid housekeepers, the members of the servile class situated somewhere below the male stratum of society to be suddenly spotlighted as highly-skilled, dextrous engineering workers exhibiting similar skills to those of the absent male engineers was certainly a stupendous occasion.

It was in March 1916 that oxy-acetylene gas welding classes began with twelve learners at a time forming a class. The contract was in the hands of a group of local firms and all the workers under training had already been engaged by one of these firms, who supplied three experienced welders to act as instructresses. The British Oxygen Company donated the necessary oxygen.[245] In mid-July these classes were suspended because all the oxygen available was required for the production of munitions. Up to this time 66 workers had been trained and all had immediately found employment.

It was proposed by the Munitions Board that the College undertake the manufacture of shell fuse-hole plugs in conjunction with the training scheme and the Engineering Sub-committee agreed. By early February 1917 production had reached about 3 000 per week.[246] Using trainees who had completed the course, the College, at the request of the Glasgow Board of Munitions, increased its production of shell plugs to 6 000 per week.[247] And shell production was a reasonably profitable business for the College. It was turning and screwing between seven and eight thousand per week for the General Utility Company at eight shillings and four pence (42p) per hundred and three to five hundred per week were turned and screwed for A Gillespie and Sons at £1-13-0d (£1.65p) per hundred. To do this work, five women were employed, each receiving up to £1-12-0d (£1.60p) per 48 hours working week.[248]

When circumstances permitted, two of the instructors also helped in the production work. Including their wages, the total College wage bill for this undertaking was about £12 per week and the receipts had 'averaged for some time' about £30 to £35 per

week.[249] And yet the College thought it had good reason to charge the customer an extra premium. As one committee reported:

> In view of the trouble and expense in connection with the output of shell-plugs turned and screwed in the Department, it was agreed to make an oncost charge of 10 percent of the amount received for this work - this sum to be paid into the general funds of the College and allocated as if it were a payment for testing or experimental work in the Department.[250]

An approach was made by a local firm asking the College to make accurate gauges for them as it was not possible to acquire gauges elsewhere. To meet the emergency a small number were made by College staff and supplied to the company.[251] This request for gauges made the Committee on Engineering realise that there was a market for these extremely accurate engineering tools. To cater for local demand the highly-skilled staff had been allowed in their spare time to make certain dies required in the production of munitions.[252] Gauges, dies, jigs and fixtures all require great accuracy of workmanship and engineering firms and the Government alike were customers of the College for these products. For example, dies for the manufacture of Lewis Gun cartridges were made for the Ministry of Munitions with a minimum accuracy of 0.0004 inches (0.01mm).[253]

In February 1917 the Ministry of Munitions had informed the College that it was going to install modern machine tools within the College. This was to enable the workers to train on more varied and complex machines and also to produce munitions on a substantial scale whilst undergoing training.[254] Because of the difficulty in obtaining such equipment, by June of 1917 the full quota of the promised machine tools had still not been delivered. Seven machines of different types had, however, been received. The machines were all of comparatively small capacity and suitable mainly for training purposes and the production of correspondingly small-size components.[255]

Early in 1917 it was reported to the Chairman's Committee that although the machines were still fully occupied there had been a decline in the number of applications for admission to the course. Because of the increased scope of the training programme,

women workers were attending for six weeks or more instead of two weeks as was customary when the more restricted training schedule was operating.[256]

In June 1917 the decline in the number of applicants was commented upon again. Officials from the Ministry of Munitions were in Glasgow at that time to assess the progress of the dilution of labour scheme in force by the employment of women workers. The College hoped that the efforts of the Ministry officials would result in an increased number of applications for admission to the longer course of instruction and to the satisfactory employment of the women when they had been trained. The number of applications had dwindled due, in part, it was stated, because women were being employed in relatively small numbers in general engineering works.[257]

However, the expected large demand for places on the course, following the visit of Ministry of Munitions officials to Glasgow earlier in 1917, did not arise. In fact, the demand for shell-workers had practically ceased. Messrs William Beardmore had 17 trainees at the College; Messrs Kelvin, Bottomley and Baird had an unspecified number and Babcock and Wilcox had seven trainees in machine work and fitting.[258]

In an attempt to combat the falling trainee roll the sub-committee recommended that an application be made for the return of Mr. John H Sinclair from military service to take up the post of Officer for Munitions Work. His task would be to make known to the manufacturers in the district the facilities provided by the College for the training of workers and to place trained workers in suitable positions. The sub-committee explained that it was difficult to find qualified engineers acquainted with workshop methods and management as practised on the Clyde so the College wanted to employ Sinclair who had these attributes. He had an M Sc degree, had been a College lecturer in Engineering and was presently a Sergeant in the Motor Machine Gun Service; a man whose qualifications appeared to render him specially suitable for the post.[259]

When the Committee on Engineering met in April 1918 the Director reported that the Release from Colours Department of the Ministry of Munitions had recommended the release of Sergeant Sinclair and the application was still being processed.[260] A 'Report to the Chairman's Committee' in July 1918 showed Mr. Sinclair's appointment as

'Lecturer (Drawing)' on a salary scale from £250 per annum to £400 per annum after five years.[261]

In March 1918 the Sub-committee on Courses for Munitions Workers met once again. The Committee received a report on workers trained for Babcock and Wilcox from the manager in charge of the trainees. The manager commented that all the girls were doing very well with the course and some of them had already been made charge-hands and the others would either get the same sort of work or be put on to special gauge work.[262]

Short courses for women inspectors of the Aeronautical Inspection Department were run by the College to fit them as Examiners. The lectures included methods of manufacture; materials; and the use of accurate measuring instruments. Later, sketching of machine components and the practical use of the measuring instruments would be undertaken. 36 workers had enrolled for the course and there were to be 15 class meetings.[263]

Following a tour of inspection by the Officer in Charge of Training in the north of England and Scotland for the Ministry of Munitions, the College was contacted by letter and new arrangements for the training of workers were explained. Applicants who passed a medical examination undertook to accept work in any controlled factory to which sent by the Ministry and would receive fifteen shillings (75p) per week maintenance allowance if living at home plus five shillings (25p) per week extra if they travelled more than three miles to their work. The allowance would be increased to twenty-five shillings (£1.25p) per week if the worker was obliged to live in lodgings.

The medical examination would be conducted by the Medical Officer of the Labour Exchange. The College would pay the examination fees, maintenance allowances, Instructors' wages and any other expenses incurred and then claim the money back from the Ministry of Munitions. The Deputy Dilution Officer for the district believed there would be no difficulty in placing workers and he would keep in touch with the College and report cases of firms wanting women workers.[264]

The College was, however, fighting a losing battle with its attempt to retain the contract for the continued training of munitions workers. By mid-1918 the training had been transferred to the Ministry of Munitions. As compensation for the loss the Ministry suggested that the College take over the plant and staff of a training centre in the north of England which was about to be closed. The Sub-committee on Courses for Munitions Workers declined the offer. Not unreasonably, they said they would take possession of the plant but did not want the staff. As an alternative, the Sub-committee proposed that the whole organisation should be transferred to the Ministry with the College only providing accommodation for the machinery. At a later meeting of the Ministry and College Governors the proposals were accepted by the Ministry and Governors alike and the Sub-committee was asked to make the necessary arrangements.[265]

As the War progressed an increasing number of disabled servicemen returned home and this raised the question of education and training for them. Facing up to the problem, because in the climate of the time it was a problem, the College decided to follow the example of the West of Scotland Agricultural College and offer prizes for the best essay on placing returned soldiers and sailors in civilian occupations. So as not to duplicate the efforts of the Agricultural College the title of the essay was to be: *The best method of Training and Employing, in industries other than Agriculture, Returned Soldiers and Sailors, maimed or otherwise.* [266]

The essays were to be submitted to the College by 17 March 1917 for assessment by Mr. John Harry Jones, Lecturer in Social Economics at the University of Glasgow. A sub-committee was formed to oversee all arrangements for the administration of the competition. In June of 1917 the sub-committee gave to the Governors the results of the essay competition. Mr. Jones had reported:

> On the whole, the results were rather disappointing. None of the candidates seemed 'big' (sic) enough to do justice to the subject; few, if any, attempted to examine the main assumptions and implications of their proposals, or recognised the difficulties which the latter might create. One regrets that the excellent scheme of the Committee met with no greater success.[267]

The views of the sub-committee did not differ greatly from Jones' and they agreed with his recommendations. These were:

Mr. E Chamberlain, Municipal Technical School, Lincoln	£10-10-0d (£10.50p)
Mr. W B Burnie, Brighton	£5-5-0d (£5.25p)
Mr. G R Carter, Huddersfield	£5-5-0d
Mr. R W Holland, Newport, Monmouthshire	£5-5-0d
Mr. J G Pierce, Hale, Cheshire	£5-5-0d

Mr. Jones gave the sub-committee a digest of the essays but stated that there were few pages of real interest and few fundamental differences in the proposals of the best candidates.[268] An interesting point is that none of the successful candidates were living in Scotland. This indicates how well publicised the essay competition had been and, more debatable, that the Scottish candidates were not as able as their counterparts living in England.

The Governors' Meeting continued and discussed a suggestion of Mr. Jones. He wanted to promote the formation of a local Advisory Reconstruction Committee which would have the two-fold function of preparing memoranda on recent developments and proposals upon the training of discharged soldiers. On the basis of the knowledge so obtained he intended to submit a scheme for an administrative body for Glasgow and the west of Scotland. The Meeting resolved that if Jones undertook the preparation of a pamphlet on the subject, utilising any valuable suggestions contained in the essays, he would be paid a fee of ten guineas (£10.50p).[269] In September 1917 the Essay sub-committee received from Mr. Jones the manuscript of the pamphlet he had written, approved it and ordered the printing of 500 copies, to be distributed as per Jones' proposals.[270]

In February 1917 the Chairman's Committee had discussed the practicality of the College giving instruction to discharged soldiers and sailors which would fit them for positions in industrial life or otherwise increase their earning powers. The Meeting commented that immediate action was to be taken involving the training as colliery firemen of men who had mining experience, 'the loss of an arm would not be a preventative'; instruction in the Electrical Engineering Department to qualify men for

positions as attendants in electrical power stations and instruction in hand-loom weaving. The approval of the SED would be necessary. Later, if no serious expenses were involved, the cooperation of the Glasgow Branch of the Incorporated Soldiers' and Sailors' Help Society would be sought.[271]

In mid-1917 Professor Burns proposed to give a course of instruction at Erskine Hospital to discharged soldiers who had formerly been miners and might be expected to qualify for the Colliery Fireman's Certificate. Although the bulk of the course would be held at the Hospital, the concluding meetings of class were to be held within the College.[272]

The Joint (Disablement) Committee corresponded with the Chairman's Committee regarding accommodation for classes for discharged soldiers and sailors. The Disablement Committee asked for details of the accommodation the College could provide in establishing courses of instruction in Tailoring and general particulars regarding other trades. The minute stated that the Ministry of Labour had appointed an Advisory Committee on instruction in Tailoring and also that a local Technical Committee had been established to cooperate with the Disablement Committee.[273]

On that local Committee sat two members of the College Committee on classes for Tailors. In his letter to the Disablement Committee giving the information asked for, the Director suggested that if the administration of the proposed classes were placed in the hands of the local Technical Committee, the members of the College Committee upon the Technical Committee would be the best medium for the utilisation of the experience and resources of the College in dealing with such classes. The Chairman's Committee agreed with the Director and expressed their willingness to cooperate with the Disablement Committee: '...it being understood that the out-of-pocket expenses of the College will be reimbursed, and that consideration for its interests will be shown in the constitution of any local Technical Committee, similar to that for Tailors.'[274]

By October 1917 it had been agreed to re-open classes for Tailors. Five Tailors, eight Tailoresses and four apprentices wanted to enrol. There were also five other applicants whose qualifications had to be checked. The Tailoring Committee also agreed to

support the scheme for the training of discharged disabled soldiers under the Joint (Disablement) Committee. The Tailoring Committee showed a pragmatic approach when it minuted:

> ...as Mr. Borland and Mr. M'Alpine [members of Committee on Classes for Tailors] were members of the Technical Committee which was to administer the classes under the Disablement Committee, the interests of the College would be fully secured.[275]

The Committee on the School of Bakery[276] and the Committee on Printing and Allied Trades also pledged their support for the work of the Joint (Disablement) Committee.[277]

Fully one year before the end of the war the Committee on Printing and Allied Trades was preparing for the training of apprentices. Dr. Maclehose initiated a discussion on the development of the training of young apprentices and the preparation necessary for the work of re-organisation after the war.[278] In September 1918 the arrangements for the training of discharged soldiers were discussed. The Committee wanted to help but the Advisory Committee set up by the Ministry of Pensions had not at that time formulated a scheme.[279]

In the same year a letter from the Ministry of Labour was received asking the College to meet with Heriot-Watt College, Edinburgh; Robert Gordon's College, Aberdeen and the Leith Nautical College in the election of one representative on the Government Committee to be established in Scotland to advise on courses of training for officers and ex-officers of the army.

The Director of the College reported that he had taken part in a conference on this subject with the Acting Principal of Heriot-Watt College and with HM District Director of the Ministry of Labour, Appointments Department. They agreed that as four representatives on the Committee were to be appointed by the whole of the Central Institutions in Scotland (one was to represent Science and Technology, one Commerce, one Agriculture and one Art), it would be better for representatives of all

the Central Institutions to meet in Edinburgh for the appointment of the four members of the Committee.[280]

Despite the School of Bakery giving approval in October 1917 to run courses for disabled soldiers, it was 1919 before anything definite was done. The College Director, H F Stockdale, reported that Mr. Hugh Wood, Assistant Secretary of the Joint (Disablement) Committee for the South West of Scotland, had informed him that five disabled soldiers had applied for courses in Bakery instruction. A sub-committee was appointed to interview the applicants and ascertain their physical fitness for the trade. The Director was requested to arrange with Mr. Wood for the attendance of the men at the College on 28 January 1919.[281] Arrangements for courses in Breadmaking and Confectionery proceeded. Included on the Confectionery course were nine Australian soldiers who were being sent for instruction during the summer months for one afternoon per week.[282]

But not everyone was happy to see the returning disabled soldiers being trained in the Bakery trade. Correspondence from the Secretary of the Joint (Disablement) Committee for South West Scotland was submitted to the College with information for the Bakery Committee. Included was a copy of a letter sent to the Secretary from the General Secretary of the Operative Bakers and Confectioners of Scotland National Federal Union. The Union strongly protested against the training of disabled soldiers and sailors in Bakery. It intimated that such ex-servicemen would not be admitted to membership of the National Federal Union, on the grounds that 3 000 members of the Union must first be resettled in civilian life.[283]

The Director called attention to the fact that when the Bakery Committee was re-appointed in 1916, the Local Branch of the National Federal Union declined to nominate representatives. As the re-appointment of Committee members would come up for consideration at the annual meeting of Governors to be held later in 1919, the question of again requesting the cooperation of the workmen was discussed. Following the discussion it was agreed to recommend that in the event of the Committee being re-appointed for another term of office, the Central Council of the National Federal Union be invited to nominate two representatives.[284]

Disabled ex-servicemen were also being trained in watchmaking. The Director reported that, at the request of the Ministry of Pensions, the workshop and equipment of the Watchmaking Classes had been placed at the disposal of the Ministry for the establishment of classes for discharged disabled soldiers and sailors. At this time 20 students had been enrolled in these classes which, although meeting in the College, were under the direction of the Joint (Disablement) Committee for South West Scotland and a Trade Advisory Committee. The classes were held during the day so as not to interfere with the evening classes in watchmaking.[285]

In the Engineering Department, proposals were received from the Ministry of Labour regarding special courses for apprentices under the Interrupted Apprenticeship Scheme of the Ministry. Arrangements for the continued training of four ex-soldiers already under instruction in the engineering shops equipped by the Ministry in the Mechanical Engineering Department were also considered.

The Committee on Engineering were of the opinion that, in view of the extremely high enrolment of regular students, it was impossible to provide special courses for apprentices under the Government Scheme, but agreed to recommend the admission of two of the apprentices who had applied who were qualified for the normal course in Engineering. It was also agreed to recommend that the College accept responsibility for the continued instruction in machine work of the discharged soldiers already in attendance, provided that the Ministry of Labour allocate to the College such a grant as would enable it to engage a skilled mechanic to be the instructor.[286]

Financial affairs had always been vitally important to The Royal Technical College. Beginning with its roots in 1796 the search for financial support in order to provide a first-class technical and scientific education had been a priority in the running of the College. The coming of war in 1914 was a new challenge to its financial stability. The dramatic fall in student numbers led to a loss of income from this source. Table 4.4 shows the fees received from students over the period under review. The records do not differentiate between fees paid by day and evening class students.

TABLE 4.4. THE ROYAL TECHNICAL COLLEGE, GLASGOW. INCOME RECEIVED FROM DAY AND EVENING CLASS STUDENT FEES 1913-1914 TO 1918-1919

Session	Income £
1913-1914	7 481
1914-1915	5 128
1915-1916	3 931
1916-1917	3 951
1917-1918	5 083
1918-1919	7 032

Source: Abstract of Accounts for sessions shown. All sums rounded to nearest £

This loss was, however, overcome by means of general economies and income from other sources, so that, overall, the College suffered no financial loss during the war. During this period the total monetary assets of the College rose from £436 396 in 1913-1914 through £462 146 in 1914-1915; £465 220 in 1915-1916; £469 549 in 1916-1917 to £474 213 at the end of the financial year in July 1918 and £490 622 at the end of the 1918-1919 financial year.[287]

At the outset of war a circular was received from the Education Department containing regulations adopted by the Government with reference to civil servants who had joined HM Forces. The document expressed the hope that lecturers and other staff would receive an immediate assurance that their posts would be kept open for them and that they would receive salary on terms not less favourable than that of civil servants.[288] These terms included the retention of their civil posts until their return from war service with such service counting for pension and incremental rises. Additionally, all ranks would receive their civil pay from which HM Service pay and all allowances would be deducted. No distinction was to be made between married and unmarried men.[289] The College adopted this proposed policy.

Typically, the financial structure of the College was composed of a series of accounts, based on income and expenditure, dependent upon what use was to be made of the money. Of these accounts, the General Account was the largest. It consisted of several separate funds of which the General Purpose Fund was the largest. Income within the General Purpose Fund was derived from sources such as investments, SED

and other grants, rents, student fees, subscriptions from firms, charitable institutions and individuals and other general income.

Within the General Account were fifteen Endowments producing income. For example, the Young Chair of Technical Chemistry, Sir John Pender Medal Fund and the David Elder Lectures Endowment, to name only three of them. Other funds within the General Account were the School of Sugar Manufacture and the Suspense Account. In addition to the General Account were the Building and Equipment Fund and the Investment Account. For the year ended 31 July 1919 these two funds showed credit balances of £24 566 and £46 200 respectively.[290]

In the Annual report for session 1914-1915 the Governors made reference to a drop in income to the General Purpose Account of £6 500 but, by taking 'drastic measures of economy' they had succeeded in ending the financial year with a credit balance.[291] Table 4.5 records details of the General Account:

TABLE 4.5. THE ROYAL TECHNICAL COLLEGE, GLASGOW. GENERAL ACCOUNT 1914-1915 TO 1918-1919

Session	Receipts £	Expenditure £	Balance £
1914-15	31 664	30 673	+ 991
1915-16	29 766	29 773	- 7
1916-17	28 382	26 517	+ 1 865
1917-18	29 032	28 660	+ 372
1918-19	53 679	50 252	+ 3 427
Totals	172 523	165 875	+ 6 648

Source: Abstract of Accounts for sessions shown. All amounts rounded to nearest £

As Table 4.5 shows, there was a steadily rising income and positive balance within the General Account for the war years. This had not been the case for the years 1900 to 1914. Over this period there had been a total income into the account of £454 789 and expenditure of £462 103, showing a deficit balance of £7 314.[292]

Economies were made by not awarding some prizes and scholarships for which endowments had been provided. For example; Euing Prize, John Stenhouse Scholarships, Sir John Pender Medal Fund, Colonel Montgomerie-Neilson Bequest,

James Young Exhibitions and the School of Sugar Manufacture. During the session 1915-1916 this was a saving of £789.[293]

Over the war period the Education (Scotland) Act 1908 grant remained constant at over £8 179 but the SED grant fluctuated between £4 000 and £6 000.[294] Laboratory test fees were another fluctuating source of income, rising from £411 during 1915-1916 through £1 140 and £1 053 to £1 629 in session 1918-1919.[295]

Staff salaries, some of which were subsidised by bequests, and administrative salaries and expenses, remained fairly constant over the period 1913-1914 to 1918-1919. It was not until session 1918-1919 that staff received a general salary increase when the total staff wage bill reached £17 674 (£16 795 after deduction of bequests), up from £14 372 (£13 522) during session 1917-1918 and £14 344 (£13 692) in 1916-1917. Administrative expenses were: 1916-1917, £1 056; 1917-1918, £970 and during 1918-1919, £1 422.[296] Table 4.6 illustrates the stability of the leadership of the several College departments throughout the war years.

TABLE 4.6. THE ROYAL TECHNICAL COLLEGE, GLASGOW. PROFESSORS IN OFFICE 1914-1915 TO 1918-1919

Department	Years	Professor
Mathematics	1909-1934	John Miller
Natural Philosophy	1906-1938	James Muir
Chemistry	1914-1919	George Gerald Henderson
Technical Chemistry from session 1919-1920	1903-1932 the two chemistry departments combined under Prof. Thomas Gray	Thomas Gray
Metallurgy	1911-1918 1918-1920	Alfred Campion Cecil H Desch
Mechanics	1904-1924	John Gordon Longbottom
Civil Engineering	1905-1936	Alexander L Mellanby
Electrical Engineering	1899-1923	Magnus Maclean
Mining Engineering	1909-1932	Daniel Burns
Architecture	1895-1926	Charles Gourlay

Source: College Calendars for the sessions shown

Undoubtedly, at the time, this constancy was to the advantage of the College and the war effort. Sceptics may argue that permanence such as that indicated may have been a benefit in the four-year war period but not otherwise. Under different circumstances, an influx of new ideas from incomers with experience of other environments, academic and otherwise, would be of greater long-term benefit within an institution teaching mainly scientific and technical subjects. Occasionally, but not in this case, permanence and stagnation may become one.

The Roll of Honour of the College shows that a total of 3 225 personnel associated with the College served in the War. Of these 615 lost their lives. Those killed represented 19 percent of those who had served.

TABLE 4.7 THE ROYAL TECHNICAL COLLEGE, GLASGOW ROLL OF HONOUR. STUDENTS AND PAST STUDENTS ON ACTIVE SERVICE 1914-1918

SUMMARY

Officers		1 482
Non-commissioned Officers		737
Men		986
Nurse		1
Others, on Special Service		19
	Total	3 225

Day Students		493
Evening Students		1 230
Former Day Students		450
Former Evening Students		986
Staff and Members of the College		66
	Total	3 225

KILLED OR DIED ON SERVICE

Officers		287
Non-commissioned Officers		151
Men		177
	Total	615

Source: *Sacrifice and Service in the War p.15*

CONCLUSION

In conclusion, the eleventh hour of the eleventh day of the eleventh month of 1918 saw peace officially declared in Europe after four years of carnage. Earlier conflicts, including the Boer War at the turn of the century, had not prepared the world for the Great War. The Boer War had introduced concentration camps; the 1914-1918 war initiated and refined new and more efficient ways of killing on a mass scale. Tanks, aeroplanes, poisonous gases and long-range artillery bombardments were used to great effect by the adversaries in an effort to exterminate as many of their enemies as possible.

But the slaughtering was not always efficient and the loss of limbs, sight and hearing and the destruction of lungs, whilst retaining life, occurred all too frequently. Many of the survivors had learnt how to live in the field, often in vermin-infested trenches that became veritable slurry pits in wet weather. They now had to learn how to live in the society to which they returned, the sound and unsound of limb and mind alike. Equally important, society had to learn how to live with them. One thing was certain in the post-war climate of uncertainty: 'things would never be the same again.'

This chapter has dealt with the activities of the University of Glasgow and its affiliated College during the First World War, 1914-1918. Large numbers of men associated with the two establishments joined one of the branches of the armed forces to help the war effort. Women, males who were in protected employment, the unfit and the ones at the opposite ends of the age spectrum stayed home and helped fight the War from the home front.

Staff members went on leave of absence to take up war duties in various government offices in London and elsewhere. Male and female medical students were mobilised for hospital work at home and abroad. Eventually, peace was restored in 1918 and thousands of ex-servicemen were given financial assistance by the Government to attend university. The absorption of men into a university not designed to hold such large numbers brought problems which Glasgow had to solve. Eventually this was done and by session 1924-1925 the bulk of ex-servicemen had graduated.

The College also had problems absorbing some returning ex-servicemen into the system. Union representatives of the Bakery trades objected strongly to the training of disabled soldiers and sailors in Breadmaking as they decreed that returning union members should receive first choice of the available jobs. As in other disputes concerning the resettlement and training of ex-servicemen the bakery dispute was settled amicably.

In common with all similar institutions in Britain, the University and the College had done their upmost to help achieve victory for the allies during the course of the war. They had provided men for the armed forces from willing ranks of past and present students and staff. And they had trained those unable to go to war, male and female, in order to achieve the greatest benefit towards the war effort at home. If it were at all within the capabilities of the two Glasgow institutions, staff with special skills, whether manual skills, academic, or a combination of the two, were utilised in whatever way they and the Government and its agencies thought fit. As soon as possible the College and the University of Glasgow went onto a war footing.

The College trained men and women within a variety of engineering skills such as turning, general machining, welding and fitting. These were skills ordinarily carried out by men now departed to war. Laboratories and workshops were utilised to aid the war effort and in the College tests were carried out within engineering, textiles and chemistry disciplines. Research work was also conducted in such fields as drug and chemical manufacture and the development of an efficient gas mask to combat the use of this deadly weapon of war.

As chapter 5 will investigate, following the cessation of hostilities, amongst the University's immediate problems were the implementation of the Education (Scotland) Act, 1918 and the effect it would have on the College and the University,[297] the reorganisation of the fee structure for the various classes[298] and also salary increases for both teaching and non-teaching staff.[299] Courses had to be arranged for returning servicemen with this work being carried out amidst the turmoil of a society changed forever by war. Although it would not be known until one could view the 1920's in retrospect, these were to be tumultuous years.

It was against this background of events that the University went about its business of running its affairs in a peacetime setting. Time would tell as to the effectiveness of the two institutions in the face of these and other problems which would arise in the future. The fact that The Royal Technical College became a degree-awarding university, the University of Strathclyde, in 1964 is a too-facile statement that deserves further research and clarification in some future work.

CHAPTER 4

FOOTNOTES

[1] UG Calendars for years discussed
[2] UG Roll of Honour 1914-1919 p.vii
[3] UG Minutes of Senate 15 August 1914 p.36 and Court Camera Minutes dated only August 1914, p.365
[4] UG Court Camera Minutes, (UGCC) 18 September 1914 p.371
[5] UG Newspaper Cuttings Book, October 1909 to July 1919 (Ref. IP 6/1/18) p.73
[6] Idem
[7] UGCC Minutes 5 November 1914 p.390
[8] Ibid 10 December 1914 p.392
[9] Ibid 7 January 1915 p.394
[10] Ibid 7 January 1915 p.395
[11] Ibid 11 February 1915 p.408
[12] J K Galbraith *The World Economy Since the War* (London 1994) p.26; and A Dickson & J Treble eds. 'Introduction' in *People and Society in Scotland, Vol.3 1914-1990* (Edinburgh 1992) p.2
[13] C Harvie 'Scottish Politics' in Dickson & Treble eds. *People and Society* p.244
[14] M Dyer *Capable Citizens and Improvident Democrats. The Scottish Electoral System 1884-1929* (Aberdeen 1996) Table 5.2, p.91
[15] I G C Hutchison *A Political History of Scotland 1832-1924* (Edinburgh 1986) p.257
[16] Ibid Table 8.2 p.259
[17] W Smart 'The Economic Dislocation of the War' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlvi 1914-1915* pp.16-36. Read before the Society 7 October 1914.
[18] Ibid p.16
[19] Idem.
[20] Ibid p.24
[21] Ibid p.27.
[22] Ibid p.31
[23] Idem
[24] Ibid p.33.
[25] Ibid p.36
[26] *Glasgow Herald* 20 March 1915
[27] Eric Hobsbawm *Age of Extremes. The Short Twentieth Century 1914-1991* (London 1995 edition) p.28
[28] J H Jones 'The War and Economic Progress' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlvii 1915-1916* p.25, Read before the Society 3 November 1915
[29] *Glasgow Herald* 20 March 1915
[30] GUCC Minutes, 10 June 1915 p.38.
See also *Glasgow Herald* 11 June 1915 in UG Newspaper Cuttings Book No.5 p.78
[31] GUCC Minutes 10 June 1915 p.44

[32] *Glasgow Herald* 26 September 1919 in Press Cuttings Book No.6 p.1
[33] James W Murray 'Trade After the War' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlviii 1916-1917* pp.126-137. Read before the Society 28 March 1917.
[34] Ibid p.126.
[35] Ibid p.128
[36] *The Glasgow Chamber of Commerce Monthly Journal* Vol. 1 January 1918 p.17
[37] Ibid p.20
[38] Cecil H Desch 'Metallurgy and the War' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlix* 1917-1918 pp.178-196 Read before the Society 7 November 1917
[39] Ibid p.179
[40] Ibid p.192
[41] Ibid p.193
[42] Ibid p.195
[43] Ibid p.196
[44] Idem
[45] Sir J H A MacDonald 'Conference on The Proposal of Universal Military Service for the Defence of the Empire.' In *The Royal Philosophical Society of Glasgow Proceedings Volume xliv 1912-1913*, pp.190-226
[46] Ibid p.191
[47] See Chapter 5 of this thesis
[48] Colonel J Drummond Young 'Conference on The Proposal of Universal Military Service...' *The Royal Philosophical Society of Glasgow Proceedings Volume xliv 1912-1913*, p.209
[49] UGCC Minutes 5 October 1916 p.160
[50] Ibid 8 November 1917 p.311
[51] UG OTC Minutes (Ref DC 99/1/1) 12 May 1908 p.2
[52] Idem
[53] Ibid 18 March 1910 p.44
[54] Ibid 20 January 1911 p.56
[55] Ibid 21 May 1912 p.98
[56] Typed letter dated 30 October 1914, inserted loosely in OTC Minutes, from Convener, Military Education Committee to the Secretary of the War Office.
[57] OTC Minutes 7 December 1914 p.128
[58] Typed letter dated 12 November 1914, inserted loosely in OTC Minutes, from the War Department to the Military Education Committee of the University.
[59] OTC Minutes 7 December 1914 pp.128 and130
[60] Ibid p.134
[61] Article headed 'Are we doing our share?' in *Glasgow Herald* 10 March 1915
[62] OTC Minutes 'Report of Work of Glasgow University OTC up to 16 March,1916' Loose insert in Minutes. See also OTC Minutes 3 May 1915 p.146
[63] OTC Minutes 16 March 1916 p.158
[64] Ibid 30 October 1916 p.168
[65] Ibid 22 January 1919 p.196
[66] UGCC Minutes 18 September 1914 pp.372-373
[67] Ibid 5 November 1914 p.402
[68] UGCC Minutes 9 December 1915 p.92

[69] Ibid 1 October 1918 p.2
[70] Galbraith *The World Economy Since the Wars* p.27
[71] UGCC Minutes, Finance Committee 3 November 1915 p.69
[72] UGCC Minutes 11 November 1915 p.73
[73] Ibid 29 March 1916 p.117
[74] Ibid p.120
[75] Ibid 4 April and 19 August 1919 p.319
[76] Ibid 10 June 1920 pp.318-319
[77] Ibid 30 September 1919 p.197
[78] Ibid 10 June 1920 p.319
[79] UG Faculty of Arts Mins. 15 December 1915 p.38
[80] UG Faculty of Science Mins. 9 November 1915 pp.2-3
[81] Ibid 14 November 1915 p.4
[82] UGCC Minutes 20 May 1915 p.109
[83] Ibid 4 November 1915 p.129
[84] Ibid October 1916 p.191
[85] UG Court Minutes 11 January 1917 p.131; Senate 11 October 1917 p.259
Ibid 31 October 1918 p.331; 130/658 female students = 19.8 percent
[86] Smart 'The Economic Dislocation of the War' p.31
[87] Elizabeth B Mitchell 'The Place of the Woman-Worker in Reconstructed Industry' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlviii* 1916-1917 pp.115-125. Read before the Society 1 November 1916
[88] Ibid p.115
[89] Ibid p.117
[90] Ibid p.116
[91] Ibid p.125
[92] UG Court Minutes 22 April 1915 p.64
[93] UGCC Minutes 11 November 1915 p.85
[94] UG Court Minutes 13 May 1915 p.72
[95] UGCC Minutes 23 June 1915 p.51
[96] Ibid 1 July 1915 p.53
[97] UG Court Minutes 1 July 1915 p.87
[98] UG Minutes of Senate 21 June 1915 p.114
[99] Ibid 23 November 1915 p.142
[100] Ibid 18 November 1915 p.135
UGCC Minutes 8 November 1917 pp.308-309
Ibid 14 February 1918 pp.347-349
[101] UG Minutes of Senate 16 November 1916 p.201
[102] UGCC Minutes 22 April 1915 p.23
UG Court Minutes 22 April 1915 p.64
[103] UGCC Minutes 8 June 1916 p.136
[104] Ibid 5 October 1916 pp.164-165
[105] Ibid 26 April 1917 p.232
[106] Ibid 5 July 1917 p.280
[107] UG Court Minutes. Finance Committee. 2 October 1917 p.3
[108] UGCC Minutes 10 January 1918 pp.339-340
[109] Ibid 25 April 1918 p.368
[110] Ibid 3 October 1918 p.448

[111] Ibid 7 October 1915 p.67
[112] UGCC Minutes, Finance Committee 30 May 1917 p.245
[113] UGCC Minutes 9 December 1915 pp.92-93
[114] *Fortuna Domus* p.330
[115] UGCC Minutes 9 December 1915 pp.92-93
[116] UGCC Minutes 13 January 1916 pp.105-106
[117] Ibid Finance Committee 25 April 1916 pp.121-122
[118] UG Court Minutes 17 June 1918 p.83
[119] UGCC Minutes 29 March 1916 p.120
[120] Ibid 27 April 1916 p.128
[121] Ibid 6 July 1916 p.152 For details of further extensions to Professor Rait's leave of absence see UGCC Mins 5 July 1917 pp.275-276;
[122] Ibid 11 May 1916 p.132
[123] Ibid 27 April 1916 p.128
For further details of extensions of leave of absence see:
UGCC Mins 5 October 1916 p.164; 15 February 1917 pp.212-213
8 November 1917 pp.308-309
[124] Ibid 5 October 1916 p.164
[125] Ibid meeting of Finance Committee 28 February 1917 pp.281-282
[126] UGCC Minutes 5 October 1916 p.164
[127] Ibid 11 January 1917 p.203
[128] Ibid 11 November 1915 p.81
[129] Ibid 5 October 1916 pp.163-164
[130] Ibid 24 April 1917 p.226
[131] Ibid 27 April 1916 p.129.
See also OTC Minutes (Ref. DC 99/1/1) 16 March 1916 p.158
[132] UGCC Minutes 5 October 1916 pp.163-164
[133] Ibid 9 November 1916 p.177
[134] UG Court Minutes 7 February 1917 p.40
[135] UGCC Minutes 4 October 1917 pp.288-289
[136] Ibid 9 December 1915 p.92
[137] Ibid 3 October 1918 pp.445-446
[138] Ibid 9 November 1916 p.177
[139] Ibid 26 April 1917 p.233
[140] Ibid 26 April 1917 p.232
[141] Ibid 3 October 1918 p.446
[142] Ibid 14 December 1916 p.187
[143] Ibid 14 December 1916 p.188
[144] UGCC Minutes 8 March 1917 p.218
[145] Ibid 4 October 1917 p.291
[146] Ibid 6 June 1918 pp.405-406
[147] Ibid 4 October 1917 pp.289-290; UG Court Minutes 4 October 1917 p.10
[148] UGCC Minutes 8 March 1917 p.218
[149] UG Minutes of Senate 11 October 1917 p.253
[150] Ibid 15 November 1917 pp.262-263
[151] Ibid 6 December 1917 p.266
[152] UGCC Minutes 27 April 1916 p.129
[153] Ibid 14 December 1916 p.198

[154] Ibid 14 December 1916 pp.198-199
[155] Ibid 3 October 1918 pp.443-445
[156] UG Court Minutes 14 December 1916 p.27
[157] Ibid 7 November 1916 p.13
[158] UGCC Minutes 8 November 1917 pp.311-313
[159] Ibid 11 May 1916 p.133
[160] Ibid 5 October 1916 pp.165-166
[161] UGCC Minutes 11 January 1917 p.205 and Ibid 15 February 1917 p.206
[162] Ibid 26 April 1917 pp.229-230
[163] Ibid 8 March 1917 p.224
[164] UG Court Minutes Finance Committee 25 April 1916 p.53
[165] Ibid 3 November 1915 p.63
[166] Ibid 27 October 1914 p.17
[167] UG Court Minutes Finance Committee 9 August 1915 p.98
[168] Ibid Finance Committee 1 December 1915 p.19
[169] UG Court Minutes 29 May 1918 pp.401-403
[170] Ibid 1 December 1915 p.19
[171] UGCC Minutes 27 April 1916 pp.126-127
[172] Ibid 27 April 1916 p.127
[173] Ibid 27 April 1916 p.128
[174] See Appendix 5.2 for details of University income and expenditure 1910-1911 - 1930-1931
[175] UGCC Minutes 22 April 1915 p.28
[176] Ibid 22 April 1915 p.29
[177] Ibid 22 April 1915 p.30
[178] Idem
[179] Ibid 27 April 1916 pp.123-124
[180] UG Minutes of Senate 10 November 1917 p.260
[181] Ibid 6 December 1917 p.267
[182] Ibid 28 February 1918 p.284
[183] Ibid 10 October 1918 pp.319-320
[184] Ibid 31 October 1918 pp.327-328
For further information on Scottish Universities (Emergency Powers) Act 1915 see UG Court Mins 8 June 1916 p.71
[185] UG Minutes of Senate 31 October 1918 p.330
[186] Ibid 14 November 1918 pp.333-334
[187] Ibid 5 December 1918 p.338
[188] UGCC Minutes 3 October 1918 p.452-453
[189] Ibid 14 February 1918 pp.343-344
[190] UG Faculty of Arts Minutes 27 February 1917 pp.52-54
[191] Ibid 20 March 1917 p.54
[192] UGCC Minutes, Works Committee meeting, 17 November 1915 p.87
[193] Ibid p.88
[194] Ibid p.89
[195] Ibid p.86. See also 6 July 1916 p.149; 2 October 1916 p.154; 9 November 1916 pp.169-171; 14 December 1916 p.198; 6 February 1917 p.205
[196] UGCC Minutes 2 July 1914 p.362 and 10 October 1914 p.381
[197] Ibid 11 March 1915 pp.2-5

[198] Ibid 11 March 1915 pp 6-8
[199] Ibid 11 March 1915 pp.9-13 and 6 July 1916 p.151
[200] Ibid 9 December 1915 pp.94-101; 5 October 1916 pp.162-163 and 9 November 1916 p.181
[201] Ibid 14 February 1918 pp.352-354
[202] Ibid 14 February 1918 p.354
[203] Ibid 8 March 1917 pp.221-223
[204] Ibid 26 April 1917 p.237
[205] Ibid 8 March 1917 p.225
[206] Ibid 26 April 1917 pp.235-236
[207] *Sacrifice and Service in the War* p.6
[208] TRTCG Annual Report 1913-1914. Located after p.175 of Minutes Frontispiece of Annual Report 1913-1914 shows photograph of Battalion in College Hall prior to departure to Gailes Training Camp. pp.4-5
[209] TRTCG Governors Meeting 15 June 1915 p.35
[210] TRTCG Minutes, Statistical Records 1917-1918 p.109
[211] TRTCG Minutes Committee On Finance & Property 20 January 1915 p.4
[212] TRTCG Annual Report 1914-1915 14 October 1915 p.53
[213] TRTCG Annual Report 1914-1915 p.4
[214] TRTCG Minutes, Committee on Engineering 25 May 1915 p.18
[215] TRTCG Minutes Chairman's Committee 10 September 1918 p.103
[216] Ibid Report to Committee on Engineering by Professor Longbottom 5 October 1915 p.93
[217] Ibid Chairman's Committee Report on Munitions Work 12 February 1917 p.10
[218] *Sacrifice and Service in the War* pp.12-13
[219] TRTCG Minutes, Committee on Engineering 28 June 1917 p.31
[220] TRTCG Minutes, Report to Chairman's Committee on War Work. 7 February 1916 p.62; *Sacrifice and Service in the War* p.8
TRTCG Minutes Committee on Chemistry and Metallurgy 11 October 1916 p.81
[221] TRTCG Minutes, Report of Chairman's Committee 10 April 1916 p.73
[222] Ibid Report to Chairman's Committee on War Work 7 February 1916 p.62
[223] *Sacrifice and Service in the War* pp.9-10
TRTCG Minutes, Chairman's Committee 12 October 1915 p.51
[224] Ibid Committee on Chemistry & Metallurgy 11 October 1916 p.81
'Toluol' and 'Toluenel' are in fact what is today commonly called 'Toluene': 'Liquid chemical compound that is poisonous and flammable, used in the making of explosives.'
Oxford Advanced Learners Encyclopaedic Dictionary p.958
[225] *Sacrifice and Service in the War* pp.10-11
[226] *Ibid* p.10
[227] TRTCG Minutes, Committee on Chemistry & Metallurgy 13 May 1918 pp.74-75
Ibid Chairman's Committee 12 June 1918 p.76
[228] *Sacrifice and Service in the War* p.13
[229] TRTCG Minutes, Committee on Textile Manufacture 6 March 1916 p.71
[230] Ibid Report on Textile Manufacture, session 1915-16 29 May 1916 p.96
[231] Ibid Committee on Textile Manufacture 10 December 1917 pp.48-49
[232] Ibid 4 May 1918 p.77
[233] Idem

[234] TRTCG Minutes, Statistical Records 1917-1918 p.109
[235] Ibid Report to the Committee On Engineering 14 September 1916 p.90
[236] Idem
[237] Idem 'Turning'. A lathe operator is called a 'Turner'
[238] Idem
[239] Idem
[240] Elizabeth B Mitchell 'The Place of the Woman-worker in Reconstructed Industry' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlviii 1916-1917* p.120. Read before the Society 1 November 1916
[241] TRTCG Minutes, Statistical Records 1917-1918 p.109
[242] Idem
[243] *Sacrifice and Service in The War* p.12
[244] Mitchell 'The Place of the Woman-Worker in Reconstructed Industry.' p.117.
[245] TRTCG Minutes, Report to Chairman's Committee 10 April 1916 p.93
Ibid Report to Committee on Engineering 14 September 1916 p.92
[246] TRTCG Minutes, Chairman's Committee, Report on Munitions Work 12 February 1917 p.10
[247] Ibid Committee on Engineering 28 June 1917 p.30
[248] Ibid Sub-committee on Courses for Munitions Workers 12 December 1917 p.51
[249] Idem
[250] Ibid p.52
[251] Ibid Report to Committee on Engineering 14 September 1916 p.92
[252] Idem
[253] *Sacrifice and Service in the War* p.12
[254] TRTCG Minutes, Chairman's Committee Report on Munitions Work 12 February 1917 p.9
[255] Ibid Committee on Engineering 28 June 1917 p.30
[256] Ibid Chairman's Committee, Report on Munitions Work 12 February 1917 p.9
[257] Ibid Committee on Engineering 28 June 1917 p.30
[258] Ibid Sub-committee on Courses for Munitions Workers 12 December 1917 p.51
[259] Ibid p.52
[260] Ibid Committee on Engineering 15 April 1918 p.65
[261] Ibid Chairman's Committee 'Report' 9 July 1918 p.8
Minutes 9 July 1918 p.90
[262] Ibid Sub-committee on Courses for Munitions Workers 12 December 1917 p.66
[263] Ibid 12 December p.67
[264] Idem
[265] Ibid Governors' Meeting 18 June 1918 p.80
[266] Ibid Chairman's Committee 7 December 1916 p.5
[267] Ibid Governors' Meeting 15 June 1917 p.22
[268] Idem
[269] Idem
[270] Ibid Chairman's Committee 26 September 1917 p.36
[271] Ibid 5 February 1917 p.7
[272] Ibid Committee on Engineering 28 June 1918 p.31
[273] Ibid Chairman's Committee 26 September 1917 p.36
[274] Idem
[275] Ibid Provisional Committee on Classes for Tailors 1 October 1917 p.35

[276] Ibid Committee on Bakery School 9 October 1917 pp.33-34
[277] Ibid Committee on Printing & Allied Trades 25 September 1917 p.35
[278] Idem
[279] Ibid 23 September 1918 p.101
[280] Ibid Chairman's Committee 18 September 1918 pp.103-104
[281] Ibid Committee on Bakery School 16 January 1919 p.133
[282] Ibid 31 March 1919 p.142
[283] Idem
[284] Idem
[285] Ibid Committee on Watch & Clockmaking Classes 2 April 1919 pp.144-145
[286] Ibid Committee on Engineering 19 September 1919
[287] TRTCG Abstract of Accounts 1909-1910 to 1916-1917 (ref. E5/1/2) and 1917-1918 to 1936-1937 (ref. E5/1/3) The assets of the College rose every year from 1909-1910 to 1933-1934.
[288] TRTCG Minutes Committee on Finance & Property 16 September 1914 p.160
[289] Idem
[290] TRTCG Abstract of Accounts 1914-1915 to 1918-1919. Sums of money rounded to nearest £1.
[291] TRTCG Annual Report 1914-1915, situated between pp.53-58 of Minutes p.8
[292] TRTCG Abstract of Accounts 1900-1901 to 1913-1914
[293] Ibid 1915-1916 pp.10-11
[294] Ibid 1913-1914 to 1918-1919
[295] Idem
[296] Idem
[297] Ibid Supplementary Report of Chairman's Committee 11 December 1918 p.119
[298] Ibid Committee on Finance & Property 28 January 1919 pp.124-126
[299] Ibid Supplementary Report of Chairman's Committee 25 April 1919 pp.148-151

CHAPTER 5

THE POST-WAR PERIOD TO 1930.
THE UNIVERSITY'S ACCLIMATISATION TO PEACE

This chapter will examine the University of Glasgow in the years following World War 1 up to 1930. Chapter 3 has evaluated the student population up to the end of 1930 and Chapter 4 has touched upon the problems of catering for returning servicemen. These topics will be expanded upon. Following a review of the economic climate, including problems encountered by both workers and employers, Chapter 5 will consider how the University proceeded once hostilities ended in 1918.

Although the west of Scotland had by 1914 a great breadth to its economic base, for example: textiles, chemicals, food and drink, the extractive industries, shipbuilding, automobiles, aeroplanes and the engineering industries, it was coal, shipbuilding and engineering which predominated. The words of one nineteenth century commentator still held true immediately following the War when he said 'Glasgow produces almost every article made of steel or iron, ranging between and including needles and 6 000-ton iron-clad ships of war.'[1]

For comparative purposes this chapter will concentrate on the dominant industries. Initially the years 1918-1930 will be examined generally in a British context but with occasional forays into the world at large. Later, more specifically, the west of Scotland, especially Glasgow and district, will be dealt with. The discussion will briefly encroach into the early 1930's to examine the results of post-war policy as it affected various world economies.

In November 1918 the Armistice was signed, bringing to an end the Great War. Now that Germany had been defeated it was hoped that the prosperous pre-war days would

return. Unknown to all, businessmen, industrialists and the working man, those days were lost forever. As one recent commentator on the period wrote:

> The First World War solved nothing. Such hopes as it generated - of a peaceful and democratic world of nation-states under the League of Nations; of a return to the world economy of 1913; even of world capitalism...overthrown within years or months by a rising of the oppressed, were soon disappointed.[2]

But the hopes and aspirations of the people who fought for their country and empire, freedom, or their own personal dreams, were to be dashed on the rocks of peacetime reality. For some months after the Armistice the country suffered severe shortages of food, clothing, coal and other basics. And on top of this, 'Spanish' or septic influenza, still raged. The epidemic had started in 1917 and peaked in the winter of 1918-1919. It killed 27 million people throughout the world and there were over 200 000 recorded deaths in the United Kingdom. The summer of 1919 saw another outbreak but fewer deaths resulted.[3]

In common with many communities and educational institutions in Britain the two Glasgow establishments wanted to show their gratitude to the fallen of the War. This was done by the erection of monuments. At the completion of the War Glasgow University's Court decided to compile a Roll of Honour to record the names of all students, graduates, alumni and other members of the University who had served in any branch of the Armed Forces. A committee was formed to consider the establishment of appropriate memorials to the dead of the University. The Principal and Lady MacAlister offered £20 000 on behalf of friends and members of the University for erecting a Memorial Chapel as a part of the scheme for completing the building of the Western Quadrangle which was approved in July 1914, but was interrupted by the outbreak of war.[4]

It was to be 1929 before the chapel was dedicated as a memorial to the members of the University who fell in the War and their names were recorded on Tablets at the east end of the chapel. The office of Chaplain had lain vacant since 1847 and it was to be 1930 before it was revived. The Chaplain appointed in 1930 was Archibald

Campbell Craig and he held office until the outbreak of the Second World War in 1939.[5]

After much discussion the Chairman's Committee of The Royal Technical College decided in December 1918 upon a monument to commemorate the dead of the College. Donations were gradually received to meet the estimated cost of £1 600. On 20 December 1921 the completed war memorial was unveiled by Lady Beilby.[6]

The survivors of the War were eventually but slowly demobilised. Well in advance of the War ending, preparations for demobilisation had been going ahead. At the Annual General Meeting of the Association of Chambers of Commerce of the United Kingdom held in London, March 1917, Mr. John Hodge, Minister of Labour, had been one of the guest speakers. When speaking he outlined a scheme for demobilisation once the War was over.[7] *The Glasgow Chamber of Commerce Monthly Journal* commented a year later that 'although the time for demobilisation of His Majesty's Forces is not yet in sight, the Government think it should be known that the problem has been receiving close attention.[8]

Immediately following the end of the War demobilisation commenced on a priority basis. There was no general demobilisation but individuals and firms could apply for priority release on compassionate grounds or, for employers, if an individual was required as a matter of emergency at work. Application for release had to be made to the Demobilisation and Resettlement Department of the Ministry of Labour.[9]

Seemingly, this announcement in the press and in information centres led to confusion on the part of the general public. Late in November 1918 the *Glasgow Herald* carried an article headed 'No General Release Yet.' It was a reminder from the Admiralty, War Office and the Air Ministry that general demobilisation had not yet begun. When it began, priority was to be given to officers and men who had jobs waiting for them.[10] General demobilisation did eventually take place and in the economic climate of the time work was available for most discharged personnel.

Upon demobilisation over one million servicemen found they had lost their jobs to either women or men who had escaped conscription. Many of the demobilised were unemployable due to either physical injury or mental illness such as 'shell-shock.' On 8 November 1920 the Unemployment Insurance Act came into operation whereby the unemployed could receive benefit until they found employment.[11] This scheme, a boon to the needy, was not universally accepted throughout Britain. Some people blamed it for the rise in unemployment following the War.

One writer on unemployment in the early 1920's, A A Mitchell, rightly attributed much of Britain's unemployment to the poverty of its foreign customers.[12] But, he also commented that previous to the dole being paid spells of unemployment had passed quickly. Continuing, he said: 'It is impossible not to ask whether there is not a causal connection between the payment of maintenance to the unemployed and the indefinite prolongation of unemployment.'[13] More brutally, Mitchell said that it seemed impossible that a man could be encouraged to sit idle to wait for a job and if there were no dole he would be driven to find and keep employment. With the dole his living was secured and work become unnecessary.[14]

Another commentator, George Wingate, wrote in 1926: 'An abnormal state of unemployment arose in the United Kingdom two years after the close of the Great War, and has continued without interruption, down to the present day.'[15] More specifically he stated that the dole was itself the major cause of unemployment in the mid-1920's and 'bearing in mind the immutable law of Supply and Demand, if we offer a price for idleness, we are bound to get it, and as we raise our price so will we increase the supply of idlers.'[16]

Unemployment, though, was not allowed to depress wages. The Wages Act of 1918 stabilised the rates then in force. In an effort to stave off social unrest the Government gave every member of HM Forces below the rank of commissioned officer unemployment benefit whilst he was seeking employment. No provision was made for officers on the assumption they had either private means or useful connections. Many of these re-enlisted whilst others joined the 'Black and Tans' in Ireland. Younger officers, along with thousands of other ex-servicemen, returned to university or

college or, with the assistance of Government scholarships, embarked for the first time on higher education courses.[17]

Women, heroines during the War were now represented as vampires who deprived men of rightful jobs. By Trade Union pressure, though cheap and efficient workers, they were dismissed from engineering, printing and transport work and from factories where they had worked on munitions.[18] Glasgow engineers had tolerated the female incursion into the munitions factories because of the manpower shortage due to the War. Now, at the first opportunity, the Unions sought their dismissal. They feared that an attentive female worker, taking advantage of the improvements in machine tools, would be able to do the machining that had kept the male engineer at the top of the skilled craftsman league.[19] At the start of the twentieth century Clydeside was dominated by the image of the skilled male craftsman and time-served apprentice. 'Probably over 70 percent of the employment in the Glasgow region could be classified as more or less skilled.'[20]

For these dismissed female workers there was no unemployment benefit; they were expected by the conventions of the time to return to the home or even become domestic servants of which there was always a shortage. This was to be expected as even the formal education of the time favoured technical skills for boys but domestic skills for girls. Girls were prepared for a life of servicing the needs of the male earners and the sex stereotyping of roles within the working-class family was invariably accepted without question.[21]

All was not lost for them, though. The Sex Disqualification (Removal) Act, 1919 admitted women to many professions, including the Bar. The first woman was called to the Bar in 1921. They had also been allowed to serve on juries in 1918 and in 1919 Lady Astor became the first female MP to take her seat following her election to the Sutton division of Plymouth.[22] Foreseeing the difficulties which might be in store for women once the War ended a certain Mrs. H M Usborne wrote a book *Women's Work in War Time*. A reviewer of the time wrote:

> The volume is readable and informative, and it puts work directly connected with the War in a less prominent position than might have been expected. Women can and should, it is shown, do great service to the country in many other ways than making munitions, important though that work was.[23]

THE ECONOMY

On the whole, the absorption of soldiers into civilian life went smoothly. However, in December 1919 the *Glasgow Herald Trade Review* appeared unimpressed with the progress of Scottish trade in that year, noting that it was recovering slowly. 'Industrially, the first calendar year of peace has been disappointing.'[24] Generally speaking, regular wages, full employment and demand for goods that had either been in short supply or non-existent during the War was so great that resulting shortages led to sharp price rises. The break in this industrial boom came in 1921, when industries were beginning to work normally again and the first peace-time reaction of extravagant spending had died down.[25] A trade depression was revealed in Britain during the 1920s in the growing unemployment rate and in the frequency of strike action, with the coalmining industry being particularly hard hit. There was, however, movement in the building industry with 1.5 million houses built during the 1920's.[26]

And yet things were meant to be so different. Before, during and after the War there had been disquiet about the comparative approaches of Britain and Germany to industrial production, with the German approach being seen as superior.[27] Following the War Britain set about the task of reconstructing its industries for peacetime activities. Many of the enlightened thought this should be done on a scientific basis as perceived to have been practised by Germany and America.

The term then in vogue was 'Rationalisation' and there was much discussion and analysis concerning exactly what this meant. J R Richmond, writing in 1929, claimed that the word 'rationalisation' originated in Germany, being first used shortly after the War by Dr. Walter Rathenau. The concept it denoted, however, was stated to have originated in America.[28] To clarify his interpretation of rationalisation Richmond wrote:

> By Rationalisation we understand the methods of technique and organisation designed to secure the minimum waste of either effort or material. They include the scientific organisation of labour, standardisation of both materials and of products, simplification of processes and improvements in the system of transport and marketing.[29]

Common features of rationalisation included the combination of different branches of industry to gain maximum efficiency and it was asked 'should the German system of syndicates, cartels and other forms of organisation be adopted by our industries?'[30] Science and the provision of education relevant to industry was also seen as an integral part of rationalisation and efficiency. Speaking in Glasgow in 1918, J Graham Kerr, Professor of Zoology in the University, said 'The most formidible (sic) institution we had to fight in Germany was not the arsenal of Krupp or the yards in which they turned out submarines, but the schools of Germany.'[31] In this respect Kerr is almost paraphrasing Blair who wrote in 1908 that it was not so much the German soldier as the German schoolmaster who had won the Franco-Prussian war for Germany in 1870.[32]

Since the War there was a general trend in Britain towards combinations with the Ministry of Munitions taking a lead in this direction. The Ministry, in its own facilities and due to the exigencies of war, had freer interchange of information and staff between different establishments, team work and coordinated control:

> In almost every department of commerce and industry, it was felt that the waste of effort due to overlapping facilities and cut-throat competition was insensate and foolish, and that some means must be taken to improve the position of the manufacturer and producer.[33]

In 1919 the University received a letter from the Coal Research Association, saying it was in great favour of one scheme of research operating over the whole industry. The Association warned, however, that it would take time as it wished to contact and possibly link up with other research organisations. As a consequence of this cooperation the 'Trade Research Association for the Mining Industry cannot be expected to come into operation in the immediate future.'[34]

K G Fenelon, a Lecturer at the University of Edinburgh, when discussing 'Modern Industrial Tendencies' before The Royal Philosophical Society of Glasgow in 1928, commented that much had been said about Rationalisation and how it had been described as a way out of the present industrial difficulties. In his opinion, expressed with great common sense:

> In so far as rationalisation means the avoidance of the wastes of competition, the introduction of new methods and of new processes, a closer relation between scientific research and industry or the adoption of more economic methods of production, it could not fail to have beneficial results, and it is to be hoped that any such possible improvement will be adopted.[35]

These discussions show that there was an awareness amongst the enlightened that all was not well with British industry and steps should be taken to remedy this situation.

One commentator described the 1920s and 1930s as bitter and hungry. This gave scope for the National Unemployed Workers' Movement (NUWM) to participate in the social, political and economic issues that affected the working class throughout this period. The organisation was formed out of the demobilised soldiers' and sailors' associations of 1918 and campaigned on a wide diversity of issues affecting the working classes. Some of the issues taken up by the NUWM were supporting the struggles of the unemployed against wage cuts, work speed-ups and unemployment; it was active in rent strikes; campaigns against evictions, task work and labour camps, the transference of labour and discrimination against women workers. It agitated against the means test; defended the Spanish Republic; opposed intervention in the Soviet Union in the early 1920's and fought for peace in the 1930's.[36]

Between the wars the electrical and chemical industries grew rapidly but the staple industries of textiles, coalmining and shipbuilding went into permanent and tragic depression. In 1913 these staples alone had produced two-fifths of Britain's foreign revenue, £202 422 000 out of a total of £525 254 000.[37]

The enormity of the problems in the coal mining industry were probably exacerbated because it was the biggest employer of manpower in Scotland and Britain at that time. Immediately following the War the miners were calling for the industry to be nationalised and in March 1919 a damaging coal strike was averted only on the promise that there would be some form of nationalisation of the mines.[38] That promise was broken, but meanwhile the Sankey Commission of 1919 produced a report which kept the parties talking and thus prevented a change of ownership of the mines. Concurrently, the inflationary price rises of 1918-1920, which forced the unions to spend most of their energies on raising wages, did as much as any deliberate action to divert interest away from thoughts of nationalisation.[39] In July 1919 miners received a wage increase of 2/- (10p) per ton and their working hours were reduced to an average of nine per day for six days, giving a basic 54 hour week.[40] Commenting upon the coalmining industry in Britain for the year 1920 the *Glasgow Herald Trade Review* reported:

> The year now closing will certainly prove to be one of the most remarkable in the history of the coal trade. It has been hardly less agitated than its predecessor, culminating as it did in the three weeks strike by the whole body of the miners employed in the United Kingdom, and the immediate outlook is quite as obscure as that which faced the trade in the opening days of the year.[41]

The same *Trade Review* also warned of the serious competition experienced for the first time from the importation into Europe of coal from the United States and Australia.

In 1913, 140 834 men had raised 42 456 516 tons of coal in Scotland, giving an average output of over 301 tons per man. In 1920, 149 105 men raised 31 523 941 tons showing that output per man had fallen to almost 212 tons. For Britain as a whole, in 1913, 1 127 890 men had raised 287 411 869 tons giving an output of 255 tons per man. In 1920 this had fallen to 1 248 224 men raising 229 532 081 tons of coal, giving an average output of 184 tons per man. These statistics show the dramatically reduced efficiency of the coal industry following the War.[42] It was little wonder that with these figures and the increased competition from imports originating in America and other countries, that the mine-owners wanted to make savings, savings

which the men rejected; a formula for chaos within the industry. Table 5.1 shows the Scottish coal output in tons and the number of men employed 1920-1930. For comparison Table 5.2 gives the same information for Britain.

TABLE 5.1. SCOTTISH COAL OUTPUT AND MANPOWER EMPLOYED 1920-1930

Year	Output (Tons)	Persons employed	Output per person	Percentage change
1920	31 523 941	149 105	211.4	nil
1921	22 545 124	120 633	186.9	- 11.6
1922	35 447 422	129 203	274.4	+ 46.8
1923	38 494 403	149 291	257.9	- 6.0
1924	36 190 281	147 606	245.2	- 4.9
1925	33 023 528	131 777	250.6	+ 2.2
1926	16 753 755	102 893	162.8	- 35.0
1927	34 597 694	113 061	306.0	+ 88.0
1928	32 358 946	100 201	322.9	+ 5.5
1929	34 175 864	103 701	329.6	+ 2.1
1930	31 658 700	100 394	315.3	- 4.3
Totals	346 769 658	1 347 865	257.3	+ 49.2

Output per person and percentage change calculated correct to nearest decimal place.

Source: GHTR 31 December 1931 p.24

Table 5.1 reveals that falling output was arrested in 1922 when the output per person rose to 274 tons. Up to 1930 there was a steady though fluctuating decline in the number of persons employed in Scotland's mines. The high point for employment had been 1923 with 149 291 people producing an average 258 tons of coal each. In 1930 100 000 persons had each produced an average of 315 tons.

Following the 1926 coal strike the output per man increased dramatically and for the period under consideration the average output never fell below the 1927 level. Perhaps one could argue that the owners had been correct in not acceding to the demands of the miners and so extending the strike to six months duration in order to show the workers that the mines would re-open only on the owners' terms. Alternatively, the slimming down of the industry where only the dedicated colliers

remained and the adoption of increased mechanisation: coal cutters, coal conveyors, and washing and screening equipment, had allowed the men to work more efficiently. The truth probably lies with both statements being partly true.

Table 5.2 shows the British output and manpower employed 1920 to 1930. This Table is included to compare the manpower and output of Scottish mines and miners with those in the remainder of the British coalfields. Obviously, the Scottish output and manpower are also included in the statistics of Table 5.2 and no attempt has been made to extricate them as their effect on the Table is considered negligible. For example, a corrected total of output per man in 1920 with the Scottish totals excluded would be 180.2 tons, a difference of 3.7 tons per person per annum. For 1925, 213.1 tons compared with 217.5 tons, a difference of 4.4 tons per man and in 1930 a corrected total of 251.7 tons, 6.8 tons less than the amount shown in Table 5.2.[43]

TABLE 5.2. BRITISH COAL OUTPUT AND MANPOWER EMPLOYED 1920-1930

Year	Output (Tons)	Persons employed	Output per person	Percentage change
1920	229 532 081	1 248 224	183.9	nil
1921	163 251 181	1 144 311	142.6	- 22.5
1922	249 584 085	1 162 754	214.6	+ 50.5
1923	275 965 702	1 220 431	226.1	+ 5.4
1924	267 061 027	1 230 248	217.1	- 4.0
1925	243 146 880	1 117 828	217.5	+ 0.2
1926	126 230 165	955 906	132.1	- 39.3
1927	251 197 384	1 037 391	242.1	+ 83.3
1928	237 471 931	951 632	249.5	+ 3.1
1929	257 906 802	969 736	266.0	+ 6.6
1930	243 881 824	943 442	258.5	- 2.8
Totals	2 545 229 062	11 981 903	212.4	+ 40.6

Output per person and tonnage per man calculated correct to nearest decimal place.

Source: GHTR 31 December 1931 p.24

Table 5.2 shows that the average British output per man 1920-1930 was 212.4 tons. For the Scottish miners this figure was 257.3 tons, indicating that the output of the Scottish miners was in excess of the British average by some 45 tons per man. The

percentage annual change in the output per person for Tables 5.1 and 5.2 are remarkably similar. Except for the year 1923, the Scottish and British percentages changed identically. The values of the percentage changes are not, however, identical. In 1913 there were 287 412 000 tons of coal produced in British mines and then there were annual falls throughout the War years to a total of 227 715 000 tons in 1918.[44]

Shipbuilding and the Clyde were synonymous. Although it had been losing ground to foreign competition, mainly to Japan and the USA but also to European builders, in the aftermath of the War it was still ranked first in the world for tonnage built. Table 5.3 shows the tonnage launched on the Clyde yards from 1919 to 1930.

TABLE 5.3 LAUNCHED TONNAGE OF THE CLYDE SHIPYARDS 1919-1930

Year	Output (Tons)	Percentage change
1919	646 154	nil
1920	672 438	+ 4.1
1921	511 185	- 24.0
1922	388 481	- 24.0
1923	175 528	- 54.8
1924	538 021	+ 206.5
1925	532 322	- 1.1
1926	286 350	- 46.2
1927	462 565	+ 61.5
1928	604 611	+ 30.7
1929	565 798	- 6.4
1930	529 844	- 6.4
Totals	5 913 297	- 18.0

Average annual output 1919 to 1930 = 492 775 tons
Percentage change calculated correct to the nearest decimal place.

Source: GHTR 31 December 1931

For the years 1919-1930 the average annual output was 492 775 tons. For the period 1910-1914 the average had been 592 762 tons. This five year period had, of course, seen the hectic clamour by the Government to build ships and acquire other naval armaments in order to keep ahead of the perceived threat from the growing German navy. In 1910 the tonnage built by Clyde yards had been 392 392 tons. In 1913 the

tonnage had grown to 756 976. Before the naval rearmament race began the Clyde had shown a decrease in output from 403 187 tons in 1909 to 392 392 tons in 1910. The onset of war stimulated demand. During the period 1914-1918, 2 374 861 tons of Clyde shipping had been launched, giving an average of 474 972 tons output per annum for the duration of the War.[45]

Sir James Lithgow, head of the Glasgow shipbuilding company of the same name, read a paper before The Glasgow Royal Philosophical Society in 1928 concerning the economic position of the shipbuilding industry. In this far-ranging paper, Sir James reminded his audience that many of the Clyde yards had throughout their history been in or on the verge of bankruptcy.[46] Sir James highlighted a number of reasons for the plight of the shipbuilding industry at this time. Amongst them were the high cost of goods from the locality,[47] the inability to supply ships with standardised components,[48] the reluctance of men to accept new, more efficient equipment without an immediate rise in wages and the lack of flexibility in working practices due to job protection exercised by the unions.[49] The attitude of the worker in not giving a fair day's work for a fair day's wage was also considered. In Sir James' words:

> An idle man, be he rich or poor, is worth absolutely nothing to the community. Nevertheless at the present moment something like 6½ % of the shipbuilder's total wages bill paid over his own counter is going to support workers in various kinds of idleness....[50]

In conclusion, Sir James stated that given the will to work and the general conviction that prosperity could come only from the efforts of all, shipbuilding might once more lead the way in the economics of Clydeside. During the War, trades union members 'enjoyed undreamt of affluence' and these days might return once again.[51]

Compared with the Clyde, other shipbuilding areas of Scotland had negligible outputs. For example, when in 1920 the Clyde had a launched tonnage of 672 438, representing 330 vessels, the Forth had 61 098 tons (9 percent of the Clyde's tonnage), the Tay 31 160 tons (4.6 percent) and the Dee 14 198 tons (2 percent).[52] Interestingly the *GHTR* commented upon the changeover from steam-powered to oil-powered vessels.

> One of the most outstanding features of the shipping tonnage at present under construction and of the recent reconditioning of vessels has been the large percentage built, building, and converted to burn oil fuel instead of coal. Suddenly the merits of oil fuel, for some years previously fully appreciated in the Navy, have been widely recognised for the mercantile marine.[53]

The compression-ignition (diesel) engine, developed in Britain on the Clyde, was at last being recognised for the added efficiency it represented. The first British compression-ignition engine was made in Glasgow by the Mirrlees Watson Company. After two years experimental work the company built them on a commercial scale. In 1906 two engines were built for the Admiralty and installed in a battleship for driving dynamos. There was a marked expansion in trade and it was commented that the year would be remembered as that in which the diesel engine became definitely practicable for the propulsion of ocean-going vessels. By 1912 the marine diesel engine was found mostly on cargo-carrying boats. Up to that time it was used neither for the propulsion of battleships nor cruisers.[54]

Huge on-board coal bunkers and the attendant hordes of stokers, were increasingly not required and soon the expense of maintaining en-route coal fuelling stations would be a thing of the past. The reduction in weight of fuel carried alone represented a saving in running costs which the mercantile fleet was at last becoming aware of. The *GHTR* did, however, add a note of caution by bringing to the attention of its readers the idea that demand for fuel oil was outstripping the then known supplies, providing this point had not already been reached. It added, though, that other experts in the field believed that there were still huge untapped reserves in the world.[55]

When reviewing the industrial situation in 1927 one observer, George Mitchell, noted the movement in Britain towards the increasing use of oil in industry. The efforts of Germany to turn coal into oil by the Bergius process were commented upon. Because of Britain's immense coal stocks Mitchell believed that it would be of immense benefit to the trade balance if oil could be produced in this country from coal instead of importing it from abroad.[56]

As Tables 5.1 and 5.3 show there was a close correlation between the amount of coal produced and the launched tonnage on the Clyde, highlighting the importance to the coal industry of the shipyards. Not surprisingly, there is a close correlation between iron ore imports, coal production and ships launched. Iron ore is the basic ingredient in steelmaking, coal/coke was required to smelt the iron ore and the shipyards used the resulting steel for their shipbuilding activities. By the 1920's the ships were constructed solely of steel.

Although Table 5.3 demonstrates that there was a fall in the ship tonnage launched on the Clyde in 1921 the biggest fall took place in 1922-1923. For coal production and iron ore importation the biggest falls took place in 1921. The apparent time-lag between coal and iron ore usage over ships launched is because of the time taken to build most ships. When a miner went on strike production stopped immediately. For the ships launched in 1921 many would have had their keel laid in 1920. Similarly, of those ships launched in 1922 many would have had their keel laid in 1921. Due to the large incidence of strikes in Clyde shipyards in 1921 not as many keels would have been set down in that year and consequently, fewer launchings in 1922 was the result.

In 1910, 7 020 543 tons of iron ore had been imported into Britain and in 1913 this total had risen to 7 442 239 tons. During the War years 1914 to 1918, both years inclusive, 315 612 112 tons were imported, giving an average of 6 312 242 tons per year. By the 1920's about two-thirds of all iron ore used in Britain was imported from Spain. Table 5.4 gives details of the importation of iron ore into Britain 1920-1930.

TABLE 5.4. THE IMPORTATION OF IRON ORE INTO GREAT BRITAIN 1919-1930

Year	Tonnage imported	Percentage change
1919	5 200 696	nil
1920	6 420 242	+ 23.4
1921	1 845 520	- 71.3
1922	3 436 382	+ 86.2
1923	5 771 272	+ 68.0
1924	5 810 493	+ 0.7
1925	4 282 713	- 26.3
1926	2 091 009	- 51.2
1927	5 090 101	+ 143.4
1928	4 435 074	- 12.9
1929	5 687 200	+ 28.2
1930	4 088 299	- 28.1
Totals	54 159 001	- 21.4

By calculation, average annual importation 1919 to 1930 = 4 513 250 tons
Percentage change calculated correct to the nearest decimal place.

Source: *GHTR* 29 December 1934 p.43

The fluctuating trade conditions of the 1920's were to give way to the true depression of the 1930's, heralded by the October 1929 Wall Street crash in the USA. Although this thesis is dealing with the University of Glasgow 1910 to 1930, some mention must be made of the deep depression which hit the world, arguably commencing 1930. During 1931 the world plunged further into the economic morass. As a result of succeeding financial crises abroad and at home, industry and commerce became increasingly depressed. World-wide, the lack of trading in money and stock markets, shipbuilding, shipping, engineering and associated industries culminated in the most distressing consequences experienced by the majority.

Textiles were seeing some slight improvement in response to the suspension of the Gold Standard by the British Government. This advantage was to prove only temporary as other countries also abandoned the Standard. The *Glasgow Herald Trade Review* reported in 1931 'in any case, it is notorious that the troubles which inflict the nation are principally due to world-wide causes and that they will yield only to world-wide remedies.'[57]

The correspondent, not named, showed great insight when commenting on the possibility of an industrial and commercial revival. Such a development, he stated, would be impossible while the problem of international indebtedness remained unsolved. The closing weeks of 1931 had seen the question of reparations and war debts engaging the attention of the representatives of the European nations and America. The correspondent continued by claiming that if one could prophesy that the United States and France would deal with reparations and war debts with true enlightenment one could also expect a genuine recovery in world trading conditions. If these two countries insisted upon complete fulfilment of the existing programme of payments by Germany a new chapter in world financial chaos would be opened. The writer ended his article:

> It is earnestly to be hoped that these nations, with whom the chief responsibility lies, will act with reasoned understanding, because upon them depends that revival from which every nation, including themselves, would benefit.[58]

He could obviously see that reparations had drained Germany and were stopping the country from growing economically and therefore participating in the world economy. Industrial Britain wanted Germany to recover in order to have another market to trade with. France, largely agricultural, was not as dependent as Britain on the prosperity of the rest of Europe and did not seek German recovery. At the 1922 Genoa Conference it was agreed that the Allies take over the German finances to ensure that Germany paid only what the country was capable of. In January 1923 the French occupied the Ruhr, saying that Germany was behind with its coal payments. At this, the British dissociated themselves from the French action.[59]

According to France, the basic facts of the situation were that Germany had started the War and therefore should pay for it. To pay for the materials of war France, Italy and Russia had borrowed heavily from Britain and, in turn, Britain and France, especially Britain, had borrowed approximately $8.7 billion from America. The logic of the time was that Germany should assume these debts. Appeals to President Calvin Coolidge to have the Allied debt absolved were denied with the reply 'They hired the money, didn't they.'[60]

At the 1919 Versailles Conference it had been decided that Germany should pay in cash and kind, especially in-kind shipments of coal to France. Unfortunately, cash payments could only be made out of a surplus in the German economy. To try and achieve a surplus, Germany had to increase exports and diminish imports. The reduction of the German market to the importation of manufactured goods meant that the remainder of the world, especially Europe, had one market less to export to yet were prone to German imports. A two-pronged attack which exacerbated the weakening economies during the 1920's. A lone and strident voice against the Versailles outcome was John Maynard Keynes.[61]

Returning to the home market, in Britain only about 17 percent of shipbuilding berths had any work under construction during 1931. At the same time, on the upper reaches of the Clyde, less than 15 000 tons were under construction. One observer described it as 'a state of affairs without parallel in the modern history of the industry.' Shipbuilding being the main heavy industry of the area meant that their bad times had a knock-on effect with the allied engineering trades, leading to general stagnation and increased unemployment.[62]

Consideration must now be given as to how the British universities and the University of Glasgow in particular, dealt with the onset of peace and the economic conditions prevailing as described above. In October 1917 a Joint Committee composed of the Business; Educational Policy, and Finance and Statistics Committees reported to the General Council on perceived after-war problems. They stated that there was a great deal of speculation as to how the University would cope after the War. The Joint Committee commented upon present problems brought about by the War, including staff and student reductions and lower revenue. It was stated that there did not appear to be much hope of major reconstruction of any Scottish university after the War.

However, the Universities Act of 1889 did give University Courts extensive powers of reforming themselves by making new ordinances or altering existing ones '...to suit new requirements and new times.'[63] The Joint Report continued: 'After the War, certain social questions will assume a new importance and consideration might be

given to what the University may be able to do in preparing those who are to devote themselves to civic and social work.'[64] The Joint Report was signed by each of the separate Committee Conveners; John Smith, James Gibson and John Glen. No details were given as to what the 'certain social questions' were or who was to be prepared for civic and social work.

In April 1918 under the heading 'After-war Problems' the Business Committee identified three areas which would require attention. These problem areas were: (a) a degree in commerce (b) bursaries (c) the status and remuneration of Lecturers and Assistants.[65]

DEGREE IN COMMERCE

In April, the General Council stated that the Business Committee had met on six occasions and discussed questions arising out of the remit on the subject of a degree in Commerce. The Committee obtained the views of the Glasgow Chamber of Commerce, the West of Scotland Commercial College, manufacturers, merchants 'and other business men' upon the type of education required to fit men for a career in business.[66] By involving the people and bodies named not only would the University obtain solid advice on the proposed degree but it would also be involving potential financial backers.

Not everyone agreed with the Chamber of Commerce's proposals and the Council received a letter of disagreement from Dr. David Murray. Concluding his long letter, Dr. Murray commented that the question for consideration was whether or not it was desirable to institute a Degree in Commerce in the University of Glasgow when there was a perfectly adequate College of Commerce which could cope with most of the work.[67]

The subject of a Faculty of Commerce, Dr. Murray said, had been before the University Court since 1903 when a committee was appointed to consider the matter. After coming before the Court on several occasions over the years it was 1914 before it resolved that neither a Faculty of Commerce nor a Degree in Commerce should be instituted at that time. The Court commented that for Engineering the University

cooperated with The Royal Technical College; for Agriculture with the West of Scotland Agricultural College and that for Commerce it should cooperate with the Commercial College.[68]

Concluding, Dr. Murray recommended that a degree in Commerce be instituted only when circumstances permitted and that an Advisory Committee be established by the Court and the Commercial College for joint action in relation to instruction and examination of students '...and ultimately to the creation of a Faculty of Commerce and the institution of a Degree in Commerce in the University.'[69] This view against the establishment of a degree in commerce had also been expressed in the *Glasgow Herald* of 19 April 1918 which observed that most of the subjects appertaining to the proposed B Comm. were already covered, with few exceptions, in the existing MA degree.

In October 1918 the Business Committee voted 18 to 12 for the proposal that the Council send the Report from the Chamber of Commerce and Dr. Murray's letter to the University Court with the recommendation that a degree in Commerce should be instituted as soon as circumstances permitted.[70] The Court replied suggesting that an Advisory Committee be set up with five representatives from the University: the Principal, Sir William Lorimer, Professor Milligan, Dr. David Murray and Mr. Bruce Murray; three representatives from the Commercial College: Sir John Mann, James Buchanan and Arthur Gairdner, two representatives from the Chamber of Commerce: James Murray and John T Cargill.[71]

Despite many meetings and reports no Faculty of Commerce nor degree were ever established in the University. The nearest to such undertakings was a Chair of Accountancy, established in 1925 and known as the Johnstone Smith Chair of Accountancy. Even then, in the absence of a Faculty of Commerce, it was difficult for the University to decide in which Faculty the Chair should be established. Eventually the Faculty of Law was decided upon as the most appropriate Faculty for the Chair.[72]

BURSARIES

With regards to bursaries it was thought that 'certain difficulties' were present that would require new legislation to change the tenure of those founded post-1865. The 'certain difficulties' were not dwelt upon but the speculation proved to be correct. A major complication was that they were closely associated with the Preliminary Entrance Examination. In 1863 there had been 80 bursaries and less than a quarter of these had been awarded by competition. By 1918 the number of bursaries had risen to 460 with 90 percent of them being awarded in open competition.[73]

When the Business Committee was discussing Bursaries in 1918 the consensus of opinion was that there should be a compulsory English test. The Committee also wanted a return to a marking schedule that differentiated between subjects. As an example it was thought that more marks should be allocated to Latin, Greek, and Mathematics compared with the 'easier' subjects of Botany, English, History and Geography. Presently, the Committee stated, English, History and Geography, 'although not as demanding subjects as the languages,' could secure three-quarters of the total marks.[74] Additionally, the Business Committee was not satisfied with the allocation of Bursaries to the various faculties. Immediately before the War, 1914, the Faculties had bursaries as shown in Table 5.5

TABLE 5.5 UNIVERSITY OF GLASGOW. ALLOCATION OF BURSARIES BY FACULTY, SESSION 1914-1915

Faculty	Bursaries	Student Numbers	Bursaries per student
Theology	46	71	1 per 1.5
Arts	299	1011	1 per 3.4
Science	19	404	1 per 21.3
Medicine	37	797	1 per 21.5

Bursaries per student calculated correct to the nearest decimal place
Source: General Council Minutes 24 April 1918 p.33

Of the 299 Bursaries in the Faculty of Arts 81 were open to all students and not only those enrolled in that faculty. Similarly, 4 of the 19 Bursaries in the Faculty of Science were open to anyone.

PRELIMINARY/ENTRANCE EXAMINATION

This is a very complex topic and, occupying a time span from 1910 to 1927, could easily be treated as a thesis in itself.[75] Space does not allow for a great depth of treatment and only the basic strands, enabling an understanding of the problems involved, will be considered.

George Davie has referred to the period 1917-1927 as 'the great crisis of the twentieth century - the Ordinance 70 Affair.'[76] In his opinion it was also a struggle between the Scottish universities and the SED which occupied a 'frenzied decade' on a complex and difficult problem.[77] Part of the complexity involved the protagonists in the discussions. Two, among many, on opposite sides of the argument were Alexander Darroch and John Burnet. Alexander Darroch, Professor of Education in the University of Edinburgh has been described as a 'modernist', propounding the pragmatist views of the American educationist John Dewey.[78]

On the other hand, John Burnet, Professor of Greek at the University of St. Andrews was described as the 'defender of generalism' and was against what he considered to be an education system organised on wholly specialist utilitarian lines which would 'even out-do the dismal pattern set by Germany.'[79] Sir John Struthers, Secretary of the SED, preached a rationalisation policy 'almost on a German scale,' where he saw the future role of the Scottish universities as becoming first-rate training colleges for turning out a very efficient set of schoolteachers for secondary education.[80]

The Universities Act of 1858 provided for a voluntary student Preliminary Entrance Examination. Those students who passed this examination were not required to attend the Junior Classes of their degree course and could, therefore, graduate after three years instead of the usual four years. Between the years 1864 to 1912 the Preliminary Examination had also been the Bursary Examination.

In 1892 a Joint Examination Board had been instituted and the Preliminary Examination became compulsory. The Examination was the same standard as the Scottish Leaving Certificate and was intended to test those not holding the Leaving

Certificate. There was also an Honours Leaving Certificate which was taken one year after the Leaving Certificate. Consequently, the Preliminary/Bursary Examination, being the same standard as the Leaving Certificate, was not difficult enough for those students holding the Honours Leaving Certificate. 1912 saw the establishment of separate Preliminary and Bursary Examinations and in 1913 the regulations, still in force in 1918, were brought into being.

Following joint action between the four Scottish universities between 1916 and 1918, the Business Committee of the University of Glasgow was able to recommend in March 1918 that the General Council approve a Draft Ordinance, which was to come into effect 31 December 1918.[81] The Entrance Board, constituted under 'General Ordinance No. 3 (Regulations as to Admission to the Scottish Universities for Purpose of Graduation)' met for the first time in the University of Glasgow 1 February 1919. The meeting of 3 April 1919 agreed to ask the University of St. Andrews if the Board could be permanently sited there. St. Andrews agreed and said that premises would be available from 28 May 1919.[82]

By the end of 1920 the *Glasgow Herald* showed some exasperation when it declared 'University entrance is becoming a bug-bear.'[83] The article recapitulated how on 1 December 1918 the Entrance Board, composed of four representatives from each of the four Scottish universities, was established. The recommendations of the Board to have a common entrance examination for each faculty was accepted by the General Council of each university but rejected by each Court. The main sticking point was stated to be the introduction of compulsory Latin for entrance to the Faculty of Arts.

The Faculties of Medicine in the four universities had not agreed fully with the new regulations and it was later in 1919 before this problem could be overcome. In October 1919 it was agreed that entrance to the Faculty of Medicine should be the same as those in force for entrance to the Faculty of Arts or the Faculty of Science for degrees in Pure Science. The agreement was worded:

> The Regulation is sent down for the opinion of the General Council; the Committee [Business Committee] recommend that the Council express to the Court its approval thereof as it will bring the Faculty of Medicine into line with the other Faculties.[84]

Although the General Councils of the universities agreed with the Regulation the approval of the several Courts still had to be obtained. And over the years this was to prove the sticking point before a common Entrance Examination could be put in place. In June 1923 the *Glasgow Herald* reported that although the other three universities had agreed to the new proposed Regulations the Court of the University of Glasgow had decided to dissent.[85] The University's objections meant that the proposed Regulations would have to be referred to the Privy Council for clarification.

In May 1924, under the heading 'Entrance Board Fiasco', the *Glasgow Herald*, when writing about the University Entrance Board, stated that 'its career of futility reached a climax in a resolution which is nothing less than the signing of its own death warrant.'[86] Once again attempts to frame regulations acceptable to the Scottish universities were frustrated by the veto of the Courts, even though the Privy Council favoured the single entrance examination.

Eventually, after many more discussions between the universities, the EIS, secondary schools and the SED agreement was reached and in October 1925 it was intimated by the General Council that as from 1 February 1927 new regulations framed under Section V of Ordinance No. 70 concerning the Scottish Universities Entrance Board would come into effect. All other ordinances by the University Courts of the four Scottish Universities being revoked from that date.[87]

LECTURERS AND ASSISTANTS

Even before the end of the War the Lecturers and Assistants had professed dissatisfaction with their status and remuneration within the University. In April 1918 the Business Committee met with a deputation of Lecturers consisting of Drs. Robert Duff, Herbert Smith, Cecil H Desch and G Haswell Wilson.[88] The 'Statement by the Lecturers' commented on the following aspects of their appointment: Status; Grading; Salaries and Pensions. After discussion, the Business Committee recommended the General Council to approve of improvements in representation, status and remuneration and to ask the Court to 'take it into its early and favourable consideration'[89]

Lecturers wanted representation on Faculty, Senate and Court bodies. This was no easy matter and such representation could only come after considerable negotiation as legislative power was required to change the constitution. The Business Committee agreed that grading and remuneration could be improved but appointments, if to be made permanent, would require further statutory powers. A Professor was appointed for life whilst Lecturers usually held renewable short-term contracts, up to a maximum of five years duration per contract. To this end the Committee urged that such improvement was necessary and should be initiated without delay.[90]

Following this initial approach, the matter of improvements in the lot of the Lecturers and Assistants was put into abeyance. The matter was resurrected in 1920 when a draft ordinance 'Regulations as to Readers, Senior Lecturers, Membership of Faculties etc.' was sent to the Council by the Court for perusal and recommendations. The title of Reader was to confer distinctive title upon qualified Lecturers. In the draft, the Court was to have the power to advance a Lecturer to the position of Reader or Senior Lecturer with the right to become a member of the faculty to which attached. Because the office of Reader was unknown in Scottish universities an Ordinance would be insufficient and the position could only be created by Parliament.[91]

At the start of academic session 1919-1920 the University was staffed by 43 Professors, 93 Lecturers and 56 Assistants. A part-time Professor received £800 per annum in remuneration and a full-timer at least £1 000. The salary of a Lecturer

varied between £300 to £600 per annum and an Assistant received £250 for full-time work[92] Lecturers and Assistants were classed as Junior Teaching Staff and, as such, were not allowed to accept teaching posts outside the University without the permission of the University Court. Professors and Junior Staff were, however, allowed to accept appointments as Examiners in other Universities and Colleges.

In 1921 the draft Universities (Scotland) Bill 1921 came before the General Council for discussion. The Bill dealt with pensions to be paid to Principals and Professors and also the admission of Lecturers to the General Council. If a lecturer had a degree granted by the University of Glasgow he was by right a member of the General Council, otherwise he was not a member.[93]

The Business Committee supported the pension part of the 1921 Bill but thought that section of the Bill dealing with Lecturers did not remedy the grievances previously brought before the Committee by the Lecturers. Then, the Lecturers had asked for membership of the Faculties, representation on the Senate and Court and membership of the General Council. The new Bill did not meet these requests. As the Committee commented, the Lecturers had no recognised position in the machinery of University organisation and management. Any new legislation had to enable the Lecturers to receive by right official information regarding problems and policy of University organisation and also to allow them to make their own distinctive contribution to that policy.[94]

In the present Bill no attempt had been made to achieve these ends. The only concession the Bill made to accommodate the wishes of the Lecturers was embodied in the following paragraph:

> Lecturers appointed by the University Court of a Scottish University who have held office therein as University Lecturers for one year shall be entitled ex-officio to be registered as members of the General Council of the University.[95]

According to the Business Committee, membership of the General Council alone was too small a step. The Committee suggested that the Lecturers should be formed into a

Lecturers' Council with rights of approach to the Court and Senate, similar to those possessed by the Council, and with representation on the Court and Senate. The adoption of these proposals would be of tremendous value in bringing Lecturers officially into touch with the body of graduate opinion.[96]

The Business Committee reported to the General Council that it was of opinion that the time was ripe for a Bill embodying a complete scheme to enable Lecturers to receive by right official information regarding the problems and policy of University organisation and to have a voice in the decision-making machinery.[97] In conclusion, the Business Committee reported to the Council that it regretted that the Bill did not go far enough in helping the Lecturers to achieve their aims.[98]

After further amendments, the 'Universities (Scotland) Bill 1922 (Proposed Parliamentary Bill)' was presented once more for discussion by the General Council. The part of the Bill relevant to the Lecturers and Assistants allowed for Lecturers who had held office for one year to be entitled ex-officio to be registered as members of the General Council. Secondly, the Court of each of the four Scottish universities was to be given the power to provide by Ordinance for the admission of Lecturers and Readers to the Senatus Academicus.[99] It was reported in October 1922 that the 1922 Act had become law on 20 July 1922. The Universities (Scotland) Act 1922 was described as:

> An Act to extend the powers of the Courts of the Universities of Scotland in the making of Ordinances for the superannuation and pensioning of Principals and Professors, and for the admission of Lecturers and Readers to membership of the General Council of those Universities.[100]

In 1923 it was noted that 31 Lecturers not holding University of Glasgow degrees had been admitted to the General Council though not entered on the Register.[101] This same year by Ordinance 23 of the University of Glasgow it was decreed that the title of Reader was in future to be changed to Principal Lecturer.[102]

The four or five years following the end of the War was a difficult time for the universities. After the storm of war they had to put their academic houses into some

kind of order, by filling gaps in staff numbers, structural repairs to buildings and the procurement and upgrading of equipment. At the same time they also had to improvise measures for dealing with an unprecedented influx of students, many of whom were 'of an unusual type, the special product of the war.' Under the Government scheme for the higher education of ex-service students, over 26 000 men, 60 percent non-commissioned officers and 'other ranks', were assisted with grants to take courses at universities and colleges.[103]

Helping to place so many men into higher education courses was the Government's way of thanking them for services rendered to the country in times of need. It also helped to provide the country with educated personnel to further its national and international progress in the industrial, commercial and professional spheres. Additionally it removed many highly educated ex-servicemen from the unemployment lists and so temporarily silenced a proportion of the potentially most vociferous anti-government elements. What may be termed a three-fold task was apparently successfully attacked during a period which saw the buoyant optimism that immediately followed the Armistice rapidly give place to the doubt and disillusionment which grew with the repeated failure of hope for the early return of settled social conditions.[104]

The University Courts of the four Scottish universities asked for and got from His Majesty in Council 12 March 1919 powers enabling them to modify or suspend applications from ex-service students provisions relating to curriculum and examinations. This power would enable each university to adapt its regulations to the special circumstances of those whose courses had been interrupted by the onset of war. The Order of May 1916 gave similar powers regarding Preliminary and other examinations. The long duration of the War gave rise to new conditions which were now met by the Supplementary Order of March 1919.[105]

As demobilised men flocked back to the University of Glasgow to complete their education the result was overcrowding of all faculties. Though the War had ended in victory for the allies, at this time peace had not yet been restored. The University, in common with most British universities, continued to work under emergency

conditions with many teaching staff still serving abroad though their services were urgently needed at home.[106]

Being specific, the University General Council stated that extra teachers, demonstrators, space and equipment for lectures in later subjects of the Medical course had become urgently necessary. The University needed help not only from the Treasury but also from private benefactors.[107] The University Court appealed to the Government for funds to meet their responsibilities to ex-servicemen students and to students from America and the overseas Dominions who were expected to become numerous in the near future. In the summer term of 1919, 60 officers and men from the USA and some from Canada and Australia were in the University for short courses before returning home in the Autumn of 1919.[108]

It was reported in 1920 that there was acute congestion in the Faculties of Science and Medicine due to the overwhelming influx of students and, in spite of all the University's efforts, it was necessary to restrict the entry of first year Engineering and Medical students. All Medical classes had been filled in April and as a consequence of this there was to be no admission in October of that year. The Department of Engineering would have its maximum number of 120 students and would also not be recruiting for October 1920. It was understood that Glasgow was not alone in taking this action and that similar steps had been taken in other universities throughout the country.[109]

The influx of ex-service students had exceeded the accommodation available and classes were being held in rooms not usually used for these purposes. Temporary lecturers were appointed and classes duplicated or re-arranged in order to teach all matriculated students. It was clear to Glasgow that educational improvements would have to wait until the position was more normal.

Immediately following the War the Treasury, in view of the necessity of providing for the education of returned officers and men, had made emergency grants available for staffing and equipment to every United Kingdom university. The Treasury had also promised to consider the pressing question of increased annual grants for university

development in the future and to this end had appointed a committee to research the matter.[110]

The returning students were not all complacent. Rowdy classes have already been commented upon in earlier pages of this thesis.[111] And this was not an isolated instance relevant only to Glasgow. It was reported that servicemen who returned to the University of Oxford included ex-officers of such ranks as colonel, major and captain. Apparently these men, well used to leading, organising and conducting, at various levels, a war, showed condescension rather than respect to the dons. The undergraduates at St. John's College took united action against the catering department and successfully demanded reform and representation in order to improve the level of catering.[112]

Both prior to and following the War there was a tradition of unruly behaviour amongst the University of Glasgow students at certain times of the year, especially at the graduation ceremony. The *Glasgow Herald* reported in November of 1911 upon the conduct of students at the winter graduation held in the Bute Hall when the proceedings were marked by their disorderly behaviour. 'The disturbances took the form mainly of chorus singing, more noisy than elegant, and of a Rugby scrum type of jostling and pushing.'[113] At this same ceremony the students seated at the rear of the hall rushed forward, broke some seats and commenced to drum with the resultant broken splinters. The noise was such that it was impossible to hear the names of graduates called and the ceremony 'might be characterised as a continuos dumb-show.'[114] The *Glasgow Herald* reported similar disturbances in 1912.[115]

At the 1920 Commemoration Day service the Principal unsuccessfully appealed for silence. As a consequence, a delegation from the rostrum went to the back of the hall to impress upon the rowdy students that their behaviour was not in keeping with the solemnity of the occasion. One of the honorary Doctors of Law was heard to remark 'it was nothing to the noise we made 40 years ago.'[116]

Taking into account that there was unrest throughout the country, most of the nation could not be labelled as revolutionary. The majority of the working class had no real

ambition to overthrow and displace the Capitalist class. Most seemed to resent the identification of their trade unions with Socialism. A more usual ambition was to rise to the grade above the craftsman by becoming a foreman and so rank socially with clerks and self-employed tradesmen. Foremen, clerks and small independent tradesmen similarly wished to rise into the middle-class of manufacturers and wholesale merchants.[117]

Glasgow had the reputation of being very left-wing and was dubbed 'Red Clydeside.' This arose from over eight years of intense labour conflict in the Glasgow area, coinciding with World War 1 and its aftermath.[118] During the War a group of shop stewards formed the militant Clyde Workers' Committee (CWC) to take unofficial action when their own unions refused confrontation with the employers. Prominent amongst the CWC were William Gallacher at Albion Motors, John Muir at Barr and Stroud, Arthur MacManus at Weirs and David Kirkwood at Beardmores. These engineers, highly skilled, well-paid and proud of their position in society, were trying to preserve the high status of their trade.[119]

The outcome of the CWC's activities was what William Gallacher christened 'The Revolt on the Clyde', in effect a series of incidents mainly involving the engineers between 1915 and 1919. During the War there was general unrest and strike action on the part of the engineers.[120] CWC strike action included: 1915 'tuppence an hour' strike, the struggles over the Clearance Certificate demanded under the Munitions Act before a man could leave his job, and over 'dilution' which was the employment of women and unskilled men in engineering jobs usually reserved for the skilled male. These actions culminated in 1916 in the deportation to Edinburgh of the leading shop stewards for the duration of the War. This quelled the unrest until the War was over. The post-war culmination of the CWC activities was the January 1919 'forty-hour strike' in support of a claim for a shorter working week in an attempt to avert post-war unemployment.[121]

There was an unsuccessful attempt to make this a general strike and a riot ensued when the police charged a large demonstration of strikers in George Square. These events persuaded the Secretary for Scotland that he was dealing with a Bolshevik

rising and he ordered troops to Glasgow, six tanks into the Cattle Market, a howitzer at the City Chambers and machine gun nests at strategic hotels and the post office. There was nothing for the troops to do but drink tea and chat to the locals, leading the officers to complain about the troops fraternising with the 'enemy'.[122] Ex-servicemen entered this arena, fresh from the bloody Great War. And in this same arena the University of Glasgow had to provide an education to fit the requirements of the civilian population.

Although there was no discernible danger to either the University or The Royal Technical College in the social unrest of the time, there were occasional breaches of discipline and a certain amount of unruliness in the classrooms. Overcrowding and over-exuberance are often soul-mates and, though apparent immediately following the War, this was to a large extent to be expected. Both University and College catered for the cream of the local population, professional and manual. Amongst the manual working classes was a hierarchy with the apprentice-trained craftsmen, including draughtsmen, at the top. Normally only these classes sought to further their education by attending day or evening classes. In the University the students would be attending full-time degree courses in Arts, Science, Law or Medicine as detailed in Chapter 3.

The War Office, in recognition of the University of Glasgow's Officer Training Corps (OTC) and the pre-eminence of the Medical School authorised the addition of a Medical Unit to the OTC with the comment that 'Officers and recruits, in full number, will doubtless be readily obtained.'[123] This outstanding service on the part of the OTC was in stark contrast to the thoughts in rhyme of one of its members writing in the University of Glasgow Magazine in session 1911-1912.

AN INTERESTING SPECTACLE

But stay! The Muse has brought
O such a funny thought.
Imagine it, our gallant little band,
The staunch and ever ready O. T. C.,
Fighting and falling for its nation land,
An interesting spectacle it would be.

The author of this poem, who signed himself 'Aramis', was Arthur Lang who was killed on the Somme in 1916.[124]

The OTC was the brain-child of Viscount Haldane who, as Secretary of State for War under Sir Henry Campbell-Bannerman, established the Cadet Force in 1908.[125] The Glasgow University Contingent of the Senior Division of the Officers' Training Corps began its work in February 1909 with the object of enabling its members to qualify for commissions in the Special Reserve of Officers or in the Territorial Force.[126] It was not until session 1932-1933 that the University Corps was also expected 'to provide a potential reserve of young officers to meet a national emergency.'[127]

Although the work of the OTC commenced in 1909 the first meeting of the University committee which formed the contingent took place in May 1908.[128] There were seven members of committee present, including the Principal. Professor Medley took the Chair. This inaugural meeting was very short with only two resolutions. Firstly it was resolved to ask the Army Council for £400 a year to supply a military lecturer 'under the scheme.' The second resolution related to the first in that a four-man committee was elected 'to take the necessary steps to secure the Military Lecturer.'[129]

Following the War it came to the notice of the contingent that there was to be an auction sale of Hunting Stewart army surplus kilts. It was decided to bid and 300 were bought for 16/- (80p) to £1 apiece. The minutes do not state the price paid but the reserve auction price was 16/- each and the University was willing to pay £1.[130] However, following the purchase, the War Office refused the subsequent request of the unit to adopt the kilt on the grounds that the uniforms of the whole army was under consideration.[131]

Not satisfied with the refusal, the Convener wrote once more to the War Office seeking permission to wear the kilt and was once more refused. Again not satisfied with the answer the Convener reported to the committee that:

> He had thereupon invoked the kind offices of Sir Henry Craik, member for the University, and that apparently in consequence of Sir Henry Craik's representations, the Army Council had now given permission for the adoption of the Kilt.[132]

This is yet another example of the benefits derived by the University from having its own representative in the House of Commons.

In 1920 there was a request from the SRC for funds for the establishment of a Students' Welfare Scheme. Both the Senate and the Court of the University agreed to appoint a Joint Committee to oversee the promotion of schemes for the welfare of students. Representatives from the General Council Committee on the Recreation Ground were to be included on any Joint Committee thus formed.

As an example of areas they would wish to promote they quoted the extension of student unions, the provision of student residential hostels and the development of the athletic ground. For the promotion of greater efficiency in attaining these goals the SRC suggested that all the separate committees formed for the above schemes should be amalgamated. The Principal intimated to the Business Committee that the Carnegie Trust had promised £15 000 to the Welfare Scheme from the reserves it had accumulated during the War that had not been allocated owing to the absence of students on war service. The £15 000 was to be allocated to three distinct areas of need. £5 000 was to go towards the provision of hostels; £5 000 for the extension of student unions, with £5 000 destined for the completion of the Anniesland Athletic Ground.[133]

The Joint Committee appointed was under the direction of Dr. John Fergus and had representatives from the Court, Senate, Graduates' and Students' organisations. King George V and Queen Mary had given their patronage and the Lord Rector, Dr. A Bonar Law was 'actively exerting himself on its behalf.' By 1922 the students had raised over £4 000 whilst other grants and gifts had raised a further £40 000.[134]

With respect to Glasgow, it must be considered in which way, if at all, the War had influenced the managers of the University with regards to the educational direction

they were to take. This is not to imply that the University in pre-1914 days had not adapted to changing needs, only that the rate of change increased post-1918. One way of gauging change is to look at the new Chairs established. Table 5.6 shows the number of new Chairs created from the eighteenth century to 1928. The table indicates the ratio of Chairs to years. Although this chapter covers the period to 1930 Table 5.6 stops at 1928 when the last Chair of the 1920's was established. The first Chair to be established in the 1930's was the Chair of Systematic Theology, founded in 1934 in consequence of the union of the Free Church with the Church of Scotland.[135]

TABLE 5.6. UNIVERSITY OF GLASGOW. RATE OF FOUNDATION OF NEW CHAIRS TO 1928

Century		No. of new Chairs	Time span (years)	Ratio Chairs/years
18th	1706-1760	7	55	1 : 8
19th	1807-1896	18	90	1 : 5
20th	1903-1913	7	11	1 : 1.6
20th	1917	1	1	1 : 1
20th	1919-1928	15	10	1 : 0.7

Ratio Chairs/years calculated correct to the nearest decimal place
Source: *UG Calendars*

Table 5.6 shows that the ratio of new Chairs established had been constantly improving over the years until, from 1919 to 1928, it had reached the average of one new Chair every eight months. Not all the Chairs were new. The Chair of Natural History (1807) became Zoology in 1903; Clinical Surgery (1874) became St. Mungo Chair of Surgery, 1911 and the Clinical Medicine (1874) became Muirhead Chair of Medicine in 1911.[136] The War had obviously left many grieving families at home who wished to remember lost relatives and donated money to the University for educational and other purposes. Many people had become rich because of the War and, for whatever reason, also wished to donate money to the University. It will be shown that money from local dignitaries and businessmen played a large part in the rationale for the establishment of the Chairs.

TABLE 5.7. UNIVERSITY OF GLASGOW. CHAIRS ESTABLISHED 1919 TO 1928

Year	Chair	Professor
1919	French	Charles Martin
1919	German	Herbert Smith
1919	Bacteriology	Carl H Browning
1919	Organic Chemistry	Thomas S Patterson
1919	Physiological Chemistry	Edward P Cathcart
1920	Mercantile Law	Thomas G Wright
1920	Applied Physics	James G Gray
1921	Electrical Engineering	George W O Howe
1921	Heat Engines	William J Goudie
1923	Public Health	John R Currie
1924	Medical Paediatrics	Archibald Young
1924	Italian	Ernesto Grillo
1924	Spanish	William J Entwistle
1925	Accountancy	John Loudon
1928	Music	W Gillies Whittaker

Source: UG Calendar 1976-1977 and 1930-1931 pp.16-18

An inspection of the Chairs shows a broad split into four main groups: Arts (Languages, Music); Commerce (Law, Accountancy); Health (Bacteriology, Organic Chemistry, Physical Chemistry, Public Health; Paediatrics); Industry (Applied Physics, Electrical Engineering, Heat Engines)

The Chairs of French and German may be looked upon as a natural progression from former years. And yet the influence of the War cannot be dismissed. Thousands of soldiers were based and fought in France and an interest in the language was bound to have been fostered. Because the enemy was Germany and Germans, an interest in the language of the foe could also have been formed during the War. Contact with Germans, either abroad or with the thousands of prisoners of war based in Britain, could also have led to a desire to learn more of the language and literature of that

country. To cater for demand, a lectureship in German had been instituted in 1899 and a Professorship in German Language and Literature in 1919.[137] A lectureship in French Language and Literature was instituted by the University Court in 1895 and the Chair, within the Faculty of Arts, was described as devoted to the modern Romantic Languages with special reference to the language and literature of France.[138]

Within the Faculty of Medicine the Gardiner Chair of Bacteriology was founded in 1919. Bacteriology formed part of the course in Pathology. It was a gift from the Glasgow shipowners William Guthrie Gardiner and his brother Sir Frederick Crombie Gardiner which funded the Chair.[139] This same year,1919, an endowment of £20 000 was provided for the foundation of a Chair in Organic Chemistry by the brothers.[140] A lectureship in Organic Chemistry had been introduced in 1898. The third Chair to be founded by a gift from the Gardiner brothers in 1919 was the 'Gardiner Professor of Physiological Chemistry' within the Faculty of Medicine. The brothers also endowed the Gardiner Chair of Music in 1928.[141] In these instances it may be conjectured that money accumulated from war-work by the Gardiner brothers was being shared by them with the University and participating students.

Although a Chair in Chemistry had been established in 1817 this was attached to the Faculty of Medicine and as late as 1863 chemistry was taught only in that faculty. John Ferguson retired from the Professorship of Chemistry in 1915 and it was reported that he cared little for experimental work. During his tenure of the Chair it was noted that the University contributed relatively little to the vast flood of chemical knowledge which was rising during one of the most formative periods of chemical development.[142]

The University relied heavily upon chemists and other staff from technical or scientific disciplines engaged in The Royal Technical College. Similarly, in years past it had employed many medical staff from the Andersonian Medical School. In many ways the College could be looked upon as a nursery where the chemists and others proved themselves, only to eventually take up employment in the University. As Butt demonstrates, the traffic in lecturers was not all one way. In 1892 G G Henderson left the University of Glasgow, where he was Senior Assistant to the Professor of

Chemistry, to take up a position in the College. He returned to the University in 1919.[143]

Henderson was the most outstanding figure in twentieth century Glasgow chemistry when appointed to the Regius Chair of Chemistry in the University in 1919.[144] In 1915 he was instrumental in inaugurating a degree in Applied Chemistry in conjunction with the University. It was stated that the degree had served a very valuable purpose in providing a satisfactory training for men embarking on a career in industrial chemistry.[145] The University had obviously ascribed great importance to the War and the obvious demand for industrial chemists before appointing Henderson Regius Professor.

A lectureship in Mercantile Law was instituted within the University in 1894. In 1920 the Chair was established within the Faculty of Law. The endowment fund of the Chair of Mercantile Law was provided partly from a bequest of the late John Maclachlan of Glasgow, partly from a grant for the purpose from the Carnegie Trust for the universities of Scotland, and partly from the Robert and James Dick of Greenhead Fund.[146]

Founded within the Faculty of Arts in 1920 was the Cargill Chair of Applied Physics. The Chair was attached to the Department of Natural Philosophy. The creation of the Chair was made possible by a grant of £20 000 by Sir John T Cargill. The Professor was to be elected by the University Court and be a member of the Faculties of Science, Engineering and Medicine.[147]

A lectureship in Electrical Engineering was confirmed in 1898 and an endowment of £30 000 raised by the Institution of Shipbuilders and Engineers in Scotland as a memorial of the centenary of the death of James Watt allowed the Chair to be inaugurated in 1921.[148] The Chair of Theory and Practice of Heat Engines received its funding from the same source and for the same reasons as the Chair of Electrical Engineering.[149] It is related in the book *Fortuna Domus* that the period after the War was one of great activity and development in the Engineering Department of the

University. The expansion of activity meant that existing facilities were too small and extensions to the engineering buildings were started in 1920.[150]

In 1921 proposals from the Science Faculty Committee of the Students' Representative Council were submitted to the Senate proposing that a separate Faculty of Engineering should be established, the course should be of four years duration and there should also be separate Chairs in Mining, Naval Architecture and Civil, Mechanical, and Electrical Engineering. In 1923 a Faculty of Engineering was formed and a new curriculum introduced that made the degree an Honours Degree. *Fortuna Domus* commented that it must have been gratifying to the students to know that their proposals were not only considered but had in practically every respect been brought into effect.[151]

Henry Mechan, Engineer of Glasgow, was the source of funding for the Henry Mechan Chair of Public Health founded in 1923. This Chair was within the Faculty of Medicine and the Professor was to be a member of the Faculties of Science and Medicine.[152] Also within the Faculty of Medicine was the Samson Gemmell Chair of Medical Paediatrics. It was founded in 1924 by the late William Gemmell in memory of his brother Professor Samson Gemmell, who occupied the Chair of Clinical Medicine 1908-1913. The Chair was held in connection with the Royal Hospital for Sick Children, Yorkhill and was financed by the Samson Gemmell Fund.[153]

A Chair of Accountancy was made possible within the University by a gift of £20 000 from chartered accountant Mr. David Johnstone Smith who donated the money in 1925 to endow the Johnstone Smith Chair of Accountancy. A practical man, Smith decreed that the course in accountancy should meet the requirements of those engaged in commerce or industry and accountants, bankers and lawyers. The Chair was within the Faculty of Law.[154] But, of course, the foundation of new Chairs in the post-war University of Glasgow was not the whole story. In order to better understand the educational direction taken by the University new lectureships, demonstrationships and classes undertaken must also be considered.

Instituted in 1919 by Leonard Gow, shipowner in Glasgow, in memory of his father, was The Leonard Gow Lectureship on the Medical Diseases of Infancy and Childhood. The Lecturer was attached to the Professorial Unit in The Royal Hospital for Sick Children.[155]

Shipbuilders Swan Hunter and Wigham Richardson, both of Wallsend and Messrs. Barclay Curle and Co, Glasgow instituted two scholarships in Naval Architecture and two in Marine Engineering to encourage self-improvement and scientific study amongst their apprentices, enabling the most able of them to obtain degrees. Each scholarship was tenable for three years at the University of Glasgow or any other approved university or college. The companies would pay all university fees and give each student £25 per annum for books and other requisites. Additionally, they would receive a £2 per week subsistence allowance during term time. The Business Committee regarded the foundation of these scholarships as 'interesting and promising additions to the educational resources of the country' and commended them as an example worthy to be followed by other companies.[156]

A Citizenship Fund was established in 1921 when Sir Daniel Macaulay Stevenson donated £20 000 towards it. The purpose of the Fund was to give:

> Instruction in the rights, duties, and obligations of citizens in relation to the city, the state, and the commonwealth of nations; to promote study, inquiry, and research on subjects bearing on local government, national polity, and international comity, and thereby to emphasise the compatibility of civic or local with national patriotism, and both with full and free international cooperation.[157]

The Fund subscribed by Sir Daniel was to finance the 'Stevenson Lectureship in Citizenship.' The first reference to the content of these lectures appears in General Council Minutes of April 1929. The minutes related that Mr. Delisle Burns, the University Lecturer in Citizenship, was to give a series of public lectures on the topic 'Citizens and Social Institutions.' The lectures were open without ticket to all members of the University and to the public. They were to be held at 5 pm in the

University and at 8 pm in various Corporation Halls. The timetable was as shown below.

1929		
November	13	Habitat and Individuality
	20	Marriage
	27	Schools
December	4	Abnormalities
	11	Industrial Occupations
	18	The City Area
1930		
January	8	The Political System
	15	The Great Society
	22	The Press
	29	The Exceptional.[158]

The topics of the Stevenson Lectures for session 1930-1931 came under the banner 'New Problems of Citizenship' and were timetabled to be held at 5 pm in the University and on the same day at 8.30 pm in the McLellan Galleries, Sauchiehall Street.

1930		
November	12	The New "Industrial Revolution"
	19	The Americanisation of Europe
	26	Economic Nationalism
December	3	Dictatorship
	10	The Youth Movement and Women's Movements
	17	Experimental Internationalism
1931		
January	7	"The West" and "The East"
	14	The New Education
	21	The Arts in Social Life
	28	The Principles of Progress.[159]

Cecil Delisle Burns was appointed Stevenson Lecturer in 1927 and held office until 1937. Before his appointment there had been five other incumbents, 1922-1926, each holding office for one year.[160]

There was no indication of the number of people who attended the meetings 1929-1931. The Stevenson Chairs of Italian and Spanish, both within the Faculty of Arts, were founded in 1924 and funded by a gift of £20 000 from Sir Daniel Stevenson. A lectureship in Italian had commenced in 1902.[161] Sir Henry Jones, Professor of Moral

Philosophy in the University, had founded a Civic Society before the War and greatly appreciated the bequest of Sir Daniel. One of the many books written by Sir Henry was *The Principles of Citizenship.*[162]

Speaking with great candour at a Higher Degree Awards Ceremony in the Bute Hall in 1921, and perhaps voicing the opinion of countless others, Sir Frederick C Gardiner, himself a benefactor of the University, broached the subject of the Chair of Citizenship when he commented that 'he himself had not mastered what it was intended to teach in that Chair, but he hoped that it might bring home to many of them a better appreciation of their duties as citizens.' He added that it might also indicate in some degree what their rights and privileges were as citizens.[163]

Writing in 1925 on the subject of Citizenship, Professor J Graham Kerr, head of the University's Department of Zoology since 1902, commented that citizenship occupied a conspicuous place in the literature of the day. He also mentioned that the Stevenson Citizenship endowment in the University was fostering the work.[164] According to the Professor, citizenship dealt 'with training the young citizen in his duties to the community and to his fellow citizens.' Moreover, it was education for 'training in the use of one's own language, training in the power of observing accurately and rapidly, and training in one's duty to one's comrades.'[165] Considering the terminology used, there seemed to be no place for women in his scheme of things. Additionally, the attributes described appear to fit very accurately the ones required of a member of the armed forces.

The Frazer Lectureship in Social Anthropology was founded by subscription in 1920 with similar Lectureships in the Universities of Oxford, Cambridge and Liverpool. The Lectureships were to commemorate the services to learning contributed by Sir James Frazer, Fellow of Trinity College, Cambridge. The Lecturer was appointed every four years to deliver a lecture on some subject connected with Social Anthropology. Lectures were delivered as specified 1924-1960 then again in 1967 and 1969.[166]

Of a more practical nature was the Mitchell Lectureship on Methods of Statistics. Sir George Arthur Mitchell, in order to extend the teaching of the Political Economy Department, donated £500 in 1925 to deliver for five years a short annual course of lectures on Methods of Statistics. In 1928 a further sum of £600 was donated from the same source.[167] Records show that six Lecturers were employed over the period 1925-1966.[168]

During the years 1926-1928 lectureships on some aspects of medicine were confirmed. These were instituted by four donors: The Royal Samaritans; Sir William Macewan; William C Teacher, the whisky distillers, and by a donor who wished to remain anonymous.

A Lectureship in Pathological Biochemistry was endowed anonymously in 1925. The endowment arranged for the establishment of a Medical Research Fund for the provision, in one or more of the Glasgow hospitals connected with the University, of Lectureships designed for the advancement of medical knowledge by means of biochemical or other methods of scientific study and research. Three Lectureships, all connected with the University, were established in The Western Infirmary; The Royal Infirmary and The Royal Hospital for Sick Children, Glasgow.[169]

The Royal Samaritan Lectureship in Gynaecology was created in 1926 as the result of a gift of £5 000 by the Governors of The Royal Samaritan Hospital for Women. The conditions attached to the gift were simple; there was to be a minimum of one course presented annually and practical instruction in gynaecology was also to be given.[170] The Lectureship was attached to The Royal Samaritan Hospital and the Lecturer had to be a Visiting Surgeon of the Hospital with charge of wards within it.[171]

Also instituted in 1926 was the Sir William Macewan Memorial Lectureship. Sir William was Regius Professor of Surgery in the University from 1892 to 1924. Biennial lectures on surgery were to be delivered where members of both the University and the public were allowed to attend. The amount of the fund was not stated and nor was the purpose of the fund, apart from commenting that it was to commemorate his life and work.[172]

The William C Teacher Lectureship in Bacteriology was inaugurated in 1928. Teacher's, whisky distillers of Glasgow and Cove, Dunbartonshire, gave to the University £10 000 of five percent War Loan to provide an income of £500 per annum for the foundation of the Lectureship to be held at Glasgow Royal Infirmary.[173]

On the engineering side, £6 000 was bequeathed by the late Mr. and Mrs. George F Loudon, Engineers and Machine Tool Makers of Glasgow, to enable the Loudon Lectureship in Engineering Production to be established. The Lectureship was to be attached to the Department of Civil Engineering and Mechanics. Conditions imposed on the bequest were that there was to be a minimum of 40 hours of class lectures and five public lectures on 'Machine Tool Types, and the art of cutting Metals and the Methods of Production.'[174]

Further Lectureships instituted in the 1920's were the Gibson Lectureship in History of Mathematics and the David Murray Lectureship. The Gibson Lectureship was endowed in 1928 from funds raised by friends of George Alexander Gibson, Professor of Mathematics in the University. The funds were to provide periodic lectures on the history of Pure or Applied Mathematics. One very distinguished Lecturer was Albert Einstein who, as Professor of Mathematics in the University of Berlin, delivered the lecture in 1933.[175]

In 1929 the David Murray Lectureship was established to deliver one or more lectures annually on the History of Learning, especially learning as related to History, Archaeology, Law or Bibliography. From 1958 the lectures were delivered biennially.[176]

The University also had a number of Demonstratorships. Although not originally established in the period 1910 to 1930 one will serve as an example. In 1875 the Arnott and Thomson Demonstratorship in Experimental Physics was endowed by Sir William Thomson, (later Lord Kelvin) Professor of Natural Philosophy in the University and Mrs. Arnott, widow of Dr. Neil Arnott, founder of the Arnott Prizes in the University. The Demonstratorship was attached to the Physical Laboratory.

The holder was appointed annually by the Professor of Natural Philosophy. His duties were to guide, under the direction of the Professor, the performance of experimental researchers in the laboratory; to give practical laboratory courses suitable for Medical and Engineering students and to take part in the teaching of the Natural Philosophy class as required by the Professor. During the period 1908 to 1940 the post was held by Dr. George Edwin Allan.[177]

Only two new classes are shown to have been started during the period 1918 to 1930. These were: 'Comparative (Classical) Philology' instituted in 1919 by the University Court[178] and 'Surgery and Orthopaedics in Relation to Infancy and Childhood' (Barclay Lectureship), also in 1919. This class was funded by an undisclosed amount by Mr. Robert F Barclay, Writer (Solicitor) of Glasgow who was the Honorary Secretary and Director of The Royal Hospital for Sick Children.[179]

As already discussed in this chapter there was a downturn in the British economy which started around the year 1921. One would expect the University to be hit by these events but as Table 5.8 shows, although sustaining a loss, in the long-term these losses totalled only £3 449. Commencing session 1918-1919, the University saw annual increases in income. Unfortunately, expenditure rose even faster leading to more sessions of loss than profit. In order to provide more detail, Table 5.8 presents the income and expenditure for the University commencing 1918-1919 until session 1930-1931.

TABLE 5.8. UNIVERSITY OF GLASGOW. REVENUE AND EXPENDITURE 1918-1919 TO 1930-1931

Year	Income	Expenditure	Surplus	Deficit
1918-1919	124 774	109 617	15 157	nil
1919-1920	161 362	152 140	9 222	nil
1920-1921	174 732	190 160	nil	15 428
1921-1922	198 720	189 664	9 056*	nil
1922-1923	207 757	207 116	641	nil
1923-1924	212 385	210 917	1 468	nil
1924-1925	212 913	221 787	nil	8 874
1925-1926	227 422	232 002	nil	4 580
1926-1927	234 844	237 956	nil	3 112
1927-1928	241 718	246 682	nil	4 964
1928-1929	251 858	251 499	359	nil
1929-1930	256 476	260 933	nil	4 457
1930-1931	273 289	271 226	2 063	nil
Totals	2 778 250	2 781 699	37 966	41 415

* Period of Accounts changed: charge for salaries includes only 10 months for Professors and 9 months for other members of the teaching staff.
All amounts in £ Sterling
Source: UGGC Mins ref. DC 183/3/3 and DC 183/3/4

As Table 5.8 shows, over the entire period there was a excess of expenditure over income totalling £3 449. The large surplus in the financial year 1918-1919 was due mainly to a jump in the Parliamentary grant of £11 660 and in increased class fees amounting to £18 538.[180] The large deficit in the financial year 1920-1921 can be accounted for by the large increase in administration costs from £8 817 in 1919-1920 to £12 712 in 1920-1921 and in salaries and pensions from £92 246 to £106 403. There was also increased expenditure in building maintenance, class expenses and the upkeep of the libraries and museums.[181] Appendix 5.2 shows University income and expenditure for the period 1910-1911 to 1930-1931.

It is not unreasonable to expect that a downturn in the economy would lead to a fall in student numbers in both the University and the College, especially male students following technical and applied science courses. During the depression of the 1920's the number of students attending both the University and the College were affected by the economy but the changing numbers did not exactly follow the trade cycle as

measured by production figures, imports or unemployment. In the University the total student population was 4 727 in session 1920-1921 and showed increases in the following two sessions to 4 856 and 4 896 students. In the next three sessions the student population dropped but never fell below 4 489. By 1927-1928 the total student numbers had risen to 5 294 and was to show yearly increases for the period covered by this thesis.

The female student numbers showed increases for most of the sessions 1914-1915 to 1930-1931, rising from 635 to 1 633, with a high of 1 693 in session 1928-1929. And of this 1 693 total, 1 414 of them, 84 percent, were enrolled for Arts courses, Science seven percent, Medicine six percent and two percent in Law. The remaining female students were studying a miscellany of courses.[182]

In session 1918-1919 male numbers more than doubled over the 1917-1918 total. Yearly increases occurred until session 1922-1923 when the numbers dropped from 3 635 in the previous session to 3 543. This decrease was due in part to the economic recession and also to the reduction in numbers of ex-servicemen taking advantage of the Government's financial aid to participate in higher education. By 1922-1923 the majority of ex-servicemen had completed University and College courses. The University Grants Committee reported that during session 1924-1925 'very few' ex-servicemen were still in attendance and by the end of the session these would have completed their courses.[183] In session 1927-1928 there was a 10 percent increase in male numbers to 3 624 and in 1928-1929 there was an increase to 3 803. Following this there were annual increases for the time span covered by this work.[184]

Taking the examination of the post-war student population further, it is worth comparing those of the University and the College. The Royal Technical College was populated predominantly by males, attending on either a full-time day or part-time evening basis. During session 1919-1920 there were 4 555 students attending evening classes and 1 135 day students. On the evening side there was then an annual decrease of students, reaching 2 880 during session 1930-1931. This was a 37 percent decrease over the 11 year time span.[185]

The story was the same in the day classes. The number of students fell during the 1920's from 1 135 in 1919-1920 to 903 in 1930-1931, a fall of over 20 percent.[186] Approximately 96 percent of evening class students were male and all of them came from Scotland.[187] On the other hand, over the period 1910-1911 to 1930-1931, an average of 10 percent of day students came from outwith Scotland.[188]

These figures indicate that the evening students were more exposed to the economic fluctuations of the economy than the day students and this is reflected in the respective falls in student numbers over the time span being considered, 37 percent compared with 20 percent. A casual perusal of the respective figures of the College and the University may at first appear to show that the College student numbers declined to a far greater extent than did the University's numbers.

But one must take care to compare like with like. Basically the College had two distinct student populations, part-time evening and full-time day. The day students were all male and some 96 percent of the evening students were also male. Only the full-time day students of the College may be legitimately compared with the students of the University who were also predominantly full-time.

The College only taught courses of a technical or scientific nature whereas the University taught a minority of such courses in science and engineering. Therefore, for a comparison of declining student numbers in both institutions to have any real meaning one has to concentrate on those students in the University following science and engineering courses. It was only in 1923 that the University had a separate Faculty of Engineering. Before that engineering was located within the Faculty of Science. When the University of Glasgow student numbers in the Faculty of Engineering are examined it is noticed that there was a fall every year from session 1924-1925 (when statistics for this new faculty were first available) to session 1930-1931. Over this period student numbers fell from 532 to 353, representing a percentage drop of 33.6.[189]

If day student numbers for the College are examined 1924-1925 to 1930-1931, the time span used for the University engineering calculation, it will be seen that student numbers fluctuated, in contrast to the steady decline in engineering students in the University. In the College, 1924-1925, there were 936 day students and the number fell to 903 in session 1930-1931, a drop of 3.5 percent, far less than the 33.6 percent drop in the University.

When the University science numbers are dealt with in the same manner as the Engineering statistics it will be seen that numbers rose from 332 in 1918-1919 to 1 081 in 1923-1924, a rise of 226 percent. In each case the numbers at this time included students of engineering. Over the period 1924-1925 to 1930-1931 student numbers remained remarkably steady, 411 in 1924-1925 and 408 in session 1930-1931. This indicates that the economic downturn hardly affected the Pure Sciences but hit the West of Scotland engineering industry and University of Glasgow engineering students hard.

Different factors influenced a student's decision as to which faculty to enrol in. However, following the War there was a general feeling amongst Britain's industrialists and the technical and science teachers in institutions such as The Royal Technical College and the University, that there was an inadequate supply of men and women with scientific training. Travel to foreign countries during the War and an exposure, however slight, to the customs of other countries led more students to enrol for courses in Modern History, Geography and foreign languages.

The area of study to receive the biggest increase was Medicine. This was to be expected. The long and devastating war utilising modern methods of mass destruction, leading to loss of limbs and gassing, coupled with field illnesses, exposed all the armed forces to the services of the medical profession. Unprecedented demands by the fighting forces on the medical profession and the loss of life sustained by the medics during the War all no doubt served to draw men and women to the medical schools and faculties after the War.

The interest in the application of science to industry had been growing since the late nineteenth century and had been gathering pace in the years before the War. Therefore, the overall decline in the numbers enrolling for technical and scientific courses during the years following the War must largely be due to the depressed state of industry. Depression led to restricted openings for all but the most able students. An employer could choose only the very best candidates for a position. The relatively high cost of technological courses which parents had to fund from reduced incomes may also have been a deterrent to potential students.

A further reason for the decrease in students of Technology and Applied Science was the counter-attraction of increased salaries in the teaching profession. For the teaching profession, courses in the Faculty of Arts and the Pure Science group of subjects were the usual preparation.[190] Tables 5.9 and 5.10, showing the percentage of students in the various faculties in Britain for 1913-1914 and 1922-1923, have been compiled to enable pre and post-war statistics to be compared. On both occasions 38 institutions took part in the survey.

TABLE 5.9. THE PERCENTAGE OF STUDENTS IN VARIOUS FACULTIES IN BRITISH UNIVERSITIES 1913-1914

Country	total students	Arts	Percentage of Total	Pure Science	Percentage of Total	Medicine	Percentage of Total	Technology	Percentage of Total	Agriculture	Percentage of Total
England	10 808	3 389	31.4	1 820	16.8	3 226	29.9	2 152	19.9	221	2.0
Wales	1 230	818	66.5	234	19.0	42	3.4	78	6.4	58	4.7
Scotland	8 419	4 004	47.6	1 224*	14.5	2 522	30.0	669*	7.9	nil*	nil
Totals	20 457	8 211	40.1	3 278	16.0	5 790	28.3	2 899*	14.2	279*	1.4
Percentage Scotland to Britain	41.2	48.8		37.3		43.6		23.1		nil*	

Note: * In these figures for the four Scottish Universities it was not possible to separate students in 'Technology' and 'Agriculture' from students in 'Pure Science'

All percentages calculated correct to the nearest decimal place

Source: University Grants Committee Returns 1922-1923 p.4

TABLE 5.10. THE PERCENTAGE OF STUDENTS IN VARIOUS FACULTIES IN BRITISH UNIVERSITIES 1922-1923

Country	total students	Arts	Percentage of Total	Pure Science	Percentage of Total	Medicine	Percentage of Total	Technology	Percentage of Total	Agriculture	Percentage of Total
England	20 104	5 912	29.4	4 102	20.4	6 535	32.5	3 301	16.4	254	1.3
Wales	2 472	1 381	55.9	681	27.5	212	8.6	118	4.8	80	3.2
Scotland	11 170	4 348	38.9	1 041	9.3	3 934	35.2	1 519	13.6	328	2.9
Totals	33 746	11 641	34.5	5 824	17.3	10 681	31.6	4 938	14.6	662	2.0
Percentage Scotland to Britain	33.1	37.4		17.9		36.8		30.8		49.6	

All percentages calculated correct to the nearest decimal place

Source: University Grants Committee Returns 1922-1923 p.4

Table 5.9 shows that before the War the Scottish universities lagged behind the remainder of the British universities in the percentage number of students following Pure Science courses. In Arts, Wales was a clear leader with two-thirds of its students following courses in that Faculty. Similarly, almost half of all students in Scotland followed Arts courses. Scotland was a marginal leader over the English universities in students of Medicine, whilst the Welsh universities catered for only 3.4 percent of such students.

Table 5.10 indicates that the percentage number of students following courses in the Faculties of Arts throughout Britain fell. The students in Scotland following Pure Science courses were only one-half to one-third of the total in England and Wales. There was an overall increase in the students of Medicine. Scotland showed an increase in students of Technology whilst England and Wales both showed decreases over the 1913-1914 percentage totals. In Britain as a whole only two percent of students followed courses in Agriculture indicating the extent of British industrialisation, the backwardness of the farming industry and the reticence, and perhaps lack of opportunity, for farming personnel to follow agricultural courses.

THE UNIVERSITY'S SYSTEM OF INTERNAL GOVERNMENT

Consideration will now be given to the functioning of the system of government employed by the University. Initially the University's MP and, therefore representative in external affairs, will be commented upon. In Scotland as a whole, until 1918 the General Council of the Universities of Glasgow and Aberdeen jointly returned one representative to Parliament. Under the Representation of the People Act, 1918, the General Councils of the four Scottish universities jointly returned three representatives. By the Representation of the People Act, 1948, the University Constituencies were abolished.[191] From 1906 until the War Sir Henry Craik represented the Universities of Glasgow and Aberdeen. Sir Henry died 12 April 1927.[192]

Born in Glasgow on 18 October 1846 Henry was the fifth son and the ninth of ten children born to the Reverend and Mrs James Craik. Henry Craik attended the University of Glasgow from 1860 and in 1865 was awarded a Snell Exhibition to Balliol College, Oxford. He was awarded a First in Classical Moderations in 1867 and two years later a Second in Literae Humaniories and a First in Law and Modern History.

Upon completion of his university courses he became in 1870 a junior examiner in the Department of Education in London and in 1878 was promoted to senior grade examiner. When the Scotch Education Department was formed in 1885 he was chosen to be its first Secretary, a position he held until his resignation in 1904. He had been knighted in 1897.

Craik was a very busy author and a regular contributor to *Quarterly Review* and others. Craik published: 1882 *Life of Swift*; 1883 *The State and Education*; 1892-1896 *English Prose Selections*; 1893 *Selections from Swift*; 1901 *A Century of Scottish History*; 1908 *Impressions of India*; 1911 *A Life of Edward, First Earl of Clarendon*.[193] In 1906 he was returned to Parliament 'in the Conservative interest' as the member for the Universities of Glasgow and Aberdeen. By this time he was sixty years of age, rather late to be commencing a parliamentary career.[194] After the Great War the four Scottish universities were combined into a single constituency and returned three MPs. He retained his seat as one of the three members returned.

In 1873 Craik married Fanny Esther and they had three sons. When War broke out he was one of the first to volunteer his services as a special constable. Despite being 68 years old he was accepted and eventually received promotion to the rank of sergeant. During his service it was noted that he never missed a roll-call, except when he was detained in the House of Commons. Even when he was in London he was out helping in the locality of every air raid.[195] A Privy Councillorship was conferred on Craik in 1918 and in 1926 he was honoured with a Baronetcy. Upon his death, 12 April 1927, he was still an MP. His eldest son, George Lillie, succeeded to his title.[196]

After the 1918 Representation of the People Act the MPs, shown in Table 5.11, were elected to serve the four Scottish Universities:

TABLE 5.11. MEMBERS OF PARLIAMENT REPRESENTING THE FOUR SCOTTISH UNIVERSITIES, 1922-1931

Year	Elected Members
1922	Sir Henry Craik
1924	Sir Henry Craik, Sir George A Berry, Dugald M Cowan
1927	John Buchan, later 1st Baron Tweedsmuir
1931	Archibald N Skelton

Source: *University of Glasgow, History and Constitution 1977-1978 p.x*

The University's system of government found itself stretched by the large influx of students in the aftermath of the War. However, a striking feature of its structure was the continuity of management. The following Tables show the various office holders over the complete period 1910-1930.

From 1876 until 1940 there were only three Clerks of Senate. From 1876 until 1911 the post was held by William Stewart, Professor of Biblical Criticism. Following Professor Stewart was Professor George Milligan, also Professor of Biblical Criticism. He was in office from 1911 until 1930. The Professor of Public Health, John Ronald Currie was the next incumbent, holding office from 1930 until 1940.[197]

Table 5.12 lists the various Assessors for the period 1910 to 1930 and Appendix 5.1 the Professors 1873-1930.

TABLE 5.12. UNIVERSITY OF GLASGOW ASSESSORS, 1910 TO 1930

Chancellor's Assessor	
1908-1922	Sir William Lorimer
1922-1924	Sir John Ure Primrose
1924-1930	Joseph, 1st Baron Maclay
Rector's Assessor	
1908-1911	Sir John Ure Primrose
1911-1914	Alexander Brown Grant
1914-1919	James Henderson Nicoll
1919-1925	Sir Thomas Dunlop
1925-1928	William Brodie
1925-1931	Sir Henry Mechan
Assessor of the Lord Provost, Magistrates and Town Council of Glasgow	
1910-1914	James M'Farlane
1914-1918	Sir Robert Graham
1918-1938	John Bruce Murray
General Council's Assessors	
1903-1928	David Murray
1905-1921	John Hutchison
1907-1921	John Smith
1918-1927	George Stevenson Middleton
1921-1937	Robert Alexander Duff
1921-1936	Duncan MacGillivray
1927-1939	John Freeland Fergus
1928-1946	David Baird Smith
Senate's Assessors	
1904-1910	Sir Henry Jones
1904-1912	Andrew Gray
1907-1911	Sir Hector Clare Cameron
1909-1913	Frederick Orpen Bower
1910-1918	John Swinnerton Phillimore
1911-1915	Sir Robert Muir
1912-1924	George Milligan
1913-1921	Sir John Graham Kerr
1915-1919	Diarmid Noel Paton
1918-1922	Robert Latta
1919-1927	Robert Hastie Bryce
1921-1925	George Alexander Gibson
1922-1930	William Murray Gloag
1924-1932	William Macneile Dixon
1925-1933	George Gerald Henderson
1927-1935	Edward Provan Cathcart
1930-1935	John Dewar Cormack
Secretary of the Court	
1888-1931	Alan Ernest Clapperton
Registrar of the General Council	
1906-1913	W Innes Addison
Registrar	
1911-1913	W Innes Addison
1913-1922	Albert Morrison
1922-1942	Robert Brough

Source: *University of Glasgow, History and Constitution 1977-1978* pp. xlvii to li

An examination of Table 5.12 reveals many long-serving officers of the University. The various Assessors may be looked upon as the eyes and ears of those they represented. The post of Rector was mainly honorary, bearing very little real power. This position changed frequently, as did his Assessor. Apart from the period 1914-1919 and 1919-1925 the Assessor was in office for only three years. On the other hand, the Chancellor held a position of power. From 1908 to 1929 the 5th Earl of Rosebery was Chancellor. And his nominated Assessor for most of this term was Sir William Lorimer, 1908-1922. Although the Lord Provost of Glasgow changed regularly his Assessor did not. From 1918 to 1938 the stalwart John Bruce Murray gave his services, ensuring the Lord Provost and Town Council of Glasgow had first hand information concerning the running of the University.

The real power-house of the University was the University Court. And it can be seen that of the 14-man membership, 11 of them were Assessors. The Rector, Principal and Lord Provost were the other members. Many of the Assessors had fifteen and more years of service. Some of the longest serving were found amongst the General Council Assessors. From 1910-1920 there were only eight General Council Assessors. David Murray, for example, spent 25 years in office. The General Council Assessor with the least service was G S Middleton and he held office from 1918-1927.

There were also long-serving members amongst the Senate's Assessors with many of them serving two consecutive terms of four years each, once again giving continuity of office. Of this group George Milligan was the longest serving with three terms, giving a total of twelve years in office, 1912-1924.

In addition to the offices already discussed there were also three standing committees. The composition of these three committees has been noted in Tables 5.13, 5.14 and 5.15. These Tables represent the years 1910, 1920 and 1930 respectively, to see if any changes can be discerned as a result of the War. It is realised that in this instance three 'snapshots' are being presented but this is thought to be adequate to show continuity of internal government and also the composition of the committees.

TABLE 5.13. UNIVERSITY OF GLASGOW. THE THREE STANDING COMMITTEES OF COUNCIL, APRIL 1910.

Business Committee

This was composed of Principal MacAlister and 16 others. These included the four Assessors of the General Council in the University Court:

D C M'Vail, David Murray, John Hutchison, Rev. John Smith.

The other twelve were:

James Gibson	William Findlay	Professor Magnus Maclean (RTCG)
Rev. W M Rankin	John Mann	Rev. Robert Craig
Rev. John Anderson	David S Clark	John G Kerr (AGS)
William Cook	Professor Robert Latto	Archibald Craig

Committee on Educational Policy and Methods

This was a ten member committee

Rev. John Anderson	Duncan MacArtney	Alexander V Lothian
Rev. W H Carslaw	William Maclennan	John G Kerr (AGS)
Rev. W M Rankin	Rev. Robert Craig	Rev. John Smith

William Marshall (Headmaster Provanside Public School)

Committee on Finance and Statistics

This was a ten member committee

James Knight	David N Knox	J B Douglas
James Glen	Henry Anderson Watt	D Norman Sloan
John Hutchison	James Buchanan	John Mann
Rev. John Smith		

Source: UG General Council Reports, October 1903 to 1929 p.2

It is worth noting the number of clergymen on the three committees; five in total. Rev. John Smith was ex-officio on all three, the Reverends Rankin, Anderson and Craig were each on two committees.

TABLE 5.14. UNIVERSITY OF GLASGOW. THE THREE STANDING COMMITTEES OF COUNCIL, APRIL 1920.

Business Committee

By 1920 this had been enlarged to 23, the Principal plus 22 others. These included the four Assessors of the General Council in the University Court:

John Hutchison Rev. John Smith David Murray George S Middleton.

The other eighteen were:

Miss Helen Rutherford
Sir John Mann
John G Kerr (Pilkington Special Hospital, St. Helen's)
Rev. Donald M'Millan
Professor W R Scott
William MacLennan
William Boyd
James Glen
Alexander Gemmell
Miss Agnes W Cameron
George A Mitchell
Rev. James Barr
Prof. G G Henderson
Rev. J T Forbes
Prof. W S McKenzie
Leonard J Russell
Peter Pinkerton
Archibald Craig

Committee on Educational Policy and Methods

This was still a ten-member committee.

Rev. John Anderson
Rev. John Smith
Fergus Smith
Peter Pinkerton
Duncan MacGillivray
Rev. Daniel Lamont
Rev. Charles Campbell
Samuel Sloan
Miss Lucy Perfect Johnston
Hugh M'Callum

Committee on Finance and Statistics

This was still a ten-member committee.

Rev. John Smith
Walter R Brown
John F Fergus
Alexander F Young
James Morton
Alexander Gemmell
D H L Young
William Brodie
George H Hedington
James Gibson

Source: UG General Council Reports, October 1903 to 1929 p.2

A very interesting point concerning the 1920 committees is the inclusion of two women on the Business Committee and one on the Committee for Educational Policy and Methods. There were also two women on the 1930 Business Committee, though not the same two, and three on the Educational Policy Committee.

TABLE 5.15. UNIVERSITY OF GLASGOW. THE THREE STANDING COMMITTEES OF COUNCIL, OCTOBER 1930.

Business Committee

Included Principal Rait and the four Assessors of the General Council in the University Court:

R A Duff Duncan MacGillivray John Freeland Fergus D Baird Smith

John Talman
Charles Stuart Douglas
Neill John Maclean
Rev. F A Steuart
Prof. Leonard Findlay
G H Edington
Alexander Gemmell
James Glen
Rev. Alex. Pender Crichton (ex officio)
Miss Janet Buchanan Gallie
John Charles Scott
Rev. John Fairley Daley
Prof. Dougald B M'Quiston (TRTCG)
Rev. Charles Richardson
Prof. W Rennie (U of G)
Miss Lilias McGregor
James Alison Gordon (ex officio)
David M Hutchison (ex officio)

Convener: John Charles Scott (Rector, Hutcheson's Grammar School)

Committee on Educational Policy and Methods

Andrew Cecil Paterson (Rector, Clydebank H S)
Mrs Flora Tebb (Headmistress Garnethill Girls H S)
Rev. Alex. Pender Crichton
Miss Elizabeth G Morison
John Charles Scott (Rector, Hutcheson's G S)(ex officio)
James Hunter
John Faichney
Miss Margaret Blackley Brechin
R M Buchanan
John Thomson

Convener: Rev. Alex. Pender Crichton

Committee on Finance and Statistics

John W W Drysdale (Bon Accord Works)
Rev. John Fairley Daley
Peter Pinkerton (Rector, High School of Glasgow)
John Dunlop Anderson
John Charles Scott (Rector Hutcheson's G S) (ex officio)
Alexander Donaldson
James Alison Gordon
Prof. John Girvan
Walter Henderson
Norman A Millar

Convener: James Alison Gordon
Clerk of the Council: David M Hutchison

The Convener of each committee was ex-officio a member of the other two.

Source: General Council Meeting 29 October 1930

The trend towards the increasing involvement of women on the committees continued. By 1930 the number had increased to five, even though there was no female representative on the Committee on Finance and Statistics. There was a spread of

representatives from various sectors of the Glasgow community, including industry, the church, several schools in the district and The Royal Technical College. The composition of the committees was to give the University the benefit of the wide-ranging experience of the members in all aspects of government required to enable the University to run smoothly, efficiently and profitably.

THE ROYAL TECHNICAL COLLEGE

Because the Royal College was an affiliated College of the University of Glasgow a very brief description of its activities will be examined. New courses which commenced 1918 to 1930 will be examined in order to try and determine the effect the War might have had on educational policy.

The College was always more practically biased than the University, concentrating principally on technical and scientific subjects. As one war-time College prospectus reported:

> The College offers complete courses of instruction of University standard in pure and applied science, and is specially designed for the education of Students intending to enter an industrial profession or trade.[198]

In addition to full-time day classes the College had a large evening class population. Day students had to be 17 years of age or over before being admitted to classes. When College Calendars for the 1920's are inspected it is seen that the object of the College remained the same but the pre-war wording had changed.[199]

And so the essential differences between the educational policy or direction of the College and the University can be discerned. The College catered solely for the more practical student or those bound for a career in industry; those students whose ambition or aim in their working lives would be to achieve a foreman's or manager's position within the industrial environment of Scotland, England, or perhaps, as frequently happened, abroad.

The only new Chair established in the College during the period under review was the School of Pharmacy.[200]

> The School of Pharmacy was instituted at the request of the Glasgow and West of Scotland Chemist's Association, with the approval of the Pharmaceutical Society of Great Britain, and with the support of the Scottish Pharmaceutical Federation and the Scientific Section of the Glasgow Chemists' Association.[201]

Many new courses were started in the post-war period. One discernible strand common to all the courses is the practical aspect. The descriptive literature in the College Calendars stressed in each case the practical application of the course of study. The message was clear. Succeed in the chosen course and the earning capacity in the market place was increased. Academic success equated to economic success.

In the area of mechanical and electrical engineering the courses of study were almost identical up to the third year. This was claimed to be necessary because the industrial conditions prevalent required that those who had adopted one branch of engineering should have knowledge of the other. The courses were designed to give a sound training in the ground principles of Engineering and their application to practical problems.[202]

The first three years of the course in Chemical Engineering was identical to that for Mechanical and Electrical Engineering. It was only in the fourth year that specialisation took place.[203] The course in Naval Architecture was intended to furnish the scientific and technical training necessary for those who proposed to adopt some branch of shipbuilding as a career.[204]

Chemistry (Dyeing, Sugar Manufacture) was described as being designed primarily for those who intended to devote themselves to industrial chemistry in a chemical works. But, it was continued, the course was broad enough for those intending to become teachers of chemistry, enter university or become analytical chemists.[205] In the field of Metallurgy it was simply stated that the course was designed for those entering the metallurgical industries and 'intending to occupy positions in works.'[206]

Two further new, or re-tailored, courses were to be found within the Building and Textile Departments respectively. The Building course was described as being designed to afford the special training required by students wanting to become Masters in any of the building trades, or to hold positions such as managers of building works, clerks or masters of works.[207]

In Textile Manufacture the course was intended to give a sound theoretical and practical training to those who wanted to be designers or manufacturers of woven fabrics or as sellers of yarns and cloths.[208] Although presented as new courses, each of those described above were simply re-vamped. Courses in most of the disciplines specified were offered in The Glasgow and West of Scotland Technical College which was the forerunner of The Royal Technical College. This should not detract from the observation that each of the courses perfectly reflected strong aspects of the economy of Glasgow and district; engineering, chemistry, shipbuilding, building and textiles.

The Glasgow School of Architecture was founded in 1903 by the amalgamation of the architectural schools of the Glasgow and West of Scotland Technical College and the Glasgow School of Art. An Ordinance of the University dated 16 April 1924 allowed students of the School to proceed to the University to follow the degree of B Sc in Architecture.[209]

Following the Great War, 11 new bursaries, scholarships or prizes were inaugurated. Of the 11, four were for work in chemistry: Ferguson Fellowship in Applied Chemistry,[210] Ramsay Memorial Fellowship for Chemical Research,[211] The J S Allan Memorial Prize,[212] and the Sir George Beilby Memorial Medal in Technical Chemistry.[213]

The Greenock Research Scholarship was intended, as first choice, for a student in engineering but, failing that other disciplines, in order of preference, were listed.[214] Two other engineering bursaries were The C C Lindsay Mechanical Engineering Scholarship[215] and the William Dawson Bursary in Mining Engineering.[216]

Architectural and Building excellence was recognised by the Professor Charles Gourlay Memorial Prizes.[217] The Walter Duncan Research Scholarship was for a candidate holding a College Diploma or B Sc in Applied Science.[218] Of a more general nature in the field of research was the Dr. James Mackenzie Prize, founded in 1928 by a gift from Dr. Mackenzie, Chairman of the Board of Governors.[219]

Finally there were the Kitchener Scholarships. These were means tested and open to the sons of members of HM Forces, officers and men, killed in action. The Scholarships were to enable the dependants to attend university or college for advanced training for industrial or commercial careers. They were tenable for three years.[220] The Kitchener Scholarships were Government funded and were an attempt to rebuild a decimated skilled workforce, at the same time giving something back to the dependants of those who had given so much for their country.

CONCLUSION

This final chapter opened describing the economic and social conditions prevailing in Britain, especially the west of Scotland, following the Armistice of November 1918 and up to 1930. Months of euphoria followed the peace even though the slowness of demobilisation led to unrest amongst British troops in Calais and the south of England.[221] As a direct result of the War, the decade up to 1930 saw the accelerated political emancipation of women in Britain.

On the economic front businessmen and governments had originally expected that the world economy would return to that prevailing pre-war. Initially the post-war boom looked promising but in strike-torn Britain it was to collapse in the early 1920's. The economic failures and social unrest related most closely to the industrial giants of the nineteenth century British economy: textiles, coal, shipbuilding and engineering. Tables have demonstrated the economic decline in Britain and Scotland in coal production, shipbuilding and by association in related industries such as pig iron consumption and engineering.

The Treaty of Versailles imposed severe war reparations on Germany which led to its economic collapse and prepared the way for the emergence of Adolf Hitler and his National Socialist Party.[222] Eventually, the American Wall Street crash of 29 October 1929 plunged the world into economic depression as world-wide trade barriers were imposed, effectively drying up the flow of trade between nations. The depression was finally broken only by the commencement of war in 1939.

With the aid of monetary grants from the Government, especially from 1919, the University Grants Committee, the Carnegie Trust and income from other sources, backed by a stable system of internal government, the University of Glasgow was able to adapt to peacetime conditions. The problems of staff shortages, an increased student population and internal reorganisation, including staff salary structures, new courses, bursaries and the status of lecturers, were overcome. In February 1919 the higher degree of Ph D was inaugurated.[223]

In order to establish the status of the University of Glasgow within the higher educational system of Scotland and Britain, comparative Tables of students numbers have been compiled. Finally, the post-war activities of the University's affiliated college, The Royal Technical College, Glasgow have been briefly reviewed.

CHAPTER 5

FOOTNOTES

[1] David Bremner *The Industries of Scotland* (Devon 1969 reprint) p.133
[2] Eric Hobsbawm *Age of Extremes* London 1995 p.51
[3] Robert Graves & Alan Hodge *The Long Weekend* (London 1965) pp.17-19
David Thomson *Europe Since Napoleon* (Middlesex 1968) p.574
[4] UG General Council Minutes (UGGC Mins.) 30 April 1919 p.16
At the end of March 1920 the fund stood at £23 000. Ibid 28 April 1920 p.6
[5] UG Calendar 1976-1977 pp. LXXXII-LXXXIII
[6] John Butt *John Anderson's Legacy* (East Linton 1996) pp.120-121
[7] James W Murray 'Trade after the War' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlviii 1916-1917* p.137. Read before the Society 28 March 1917.
[8] *The Glasgow Chamber of Commerce Monthly Journal* vol.1 March 1918 p.87
[9] *Glasgow Herald* 18 November 1918
[10] Ibid 28 November 1918
[11] Graves and Hodge *The Long Weekend* p.23
[12] A A Mitchell 'Unemployment' in *The Royal Philosophical Society of Glasgow Proceedings Volume lii 1923-1924* p.198. Read before the Society 23 January 1924
[13] Ibid p.200
[14] Ibid pp.200-201
[15] George Wingate 'The Dole and Unemployment' in *The Royal Philosophical Society of Glasgow Proceedings Volume liv 1925-1926* p.32. Read before the Society 27 January 1926
[16] Ibid pp.35-36. See also on the subject of the dole: Sir James Lithgow 'The economic position of the shipbuilding industry' Ibid vol.lvi 1927-1928 pp.43-44 A F Fergus 'Vision and Industrial Efficiency' Ibid vol. lvii 1928-1929 p.22
[17] Graves and Hodge *Long Weekend* pp.23-24
[18] Ibid p.40; Arthur McIvor 'Gender Apartheid?: Women in Scottish Society' in *Scotland in the 20th Century* T Devine & R Finlay eds. (Edinburgh 1996) p.196
[19] T C Smout *A Century of the Scottish People 1830-1950* (London 1987) p.93
[20] Ibid p.87
[21] Arthur McIvor 'Gender Apartheid' p.192
[22] Graves and Hodge *Long Weekend* p.42
[23] *The Glasgow Chamber of Commerce Monthly Journal* vol. 1 March 1918 p.88
[24] *The Glasgow Herald Trade Review* 30 December 1919 p.27
[25] Graves and Hodge *Long Weekend* pp.63-65.
[26] Peter Mathias *The First Industrial Nation* (London 1969) p.439

[27] See J Montgomery 'Education and Commerce' in *The Royal Philosophical Society of Glasgow Proceedings Volume xlii 1910-1911* pp.111-124.
W Smart 'The Economic Dislocation of the War' Ibid vol. xlvi 1914-1915 pp.16-36, esp. pp.24,27,33,36.
J H Jones 'The War and Economic Progress' Ibid vol. xlvii 1915-1916 pp.25-47. esp. p.25. J W Murray 'Trade After the War' Ibid vol. xlviii 1916-1917 pp.126-137. esp.pp.126, 128,132,133,137. T H P Heriot 'The Sugar Industry After the War' Ibid vol. xlix 1917-1918 pp.31-44 esp. p.32.
C H Desch 'Metallurgy and the War' Ibid vol. xlix 1917-1918 pp.178-196
J G Kerr 'Science and Education' Ibid vol. l 1918-1920 pp.33-49 esp. p.33
J R Richmond 'Rationalisation' Ibid vol. lviii 1929-1930 pp.33-47 esp. pp.33,34,36,

[28] J R Richmond Ibid p.33. Richmond points out that rationalisation started in the USA from the work and writings of F W Taylor. Ibid p.37. Although not mentioned specifically, Richmond was undoubtedly referring to Taylor's book *Principles of Scientific Management* (New York 1911)

[29] Richmond Ibid p.33

[30] C H Desch 'Metallurgy and the War' Ibid vol.xlix 1917-1918 p.193

[31] J G Kerr 'Science and Education' Ibid vol. l 1918-1920 p.33

[32] M Blair *History of the Glasgow Technical College (Weaving Branch)* (Glasgow 1908) pp.10-11

[33] J R Richmond 'Rationalisation' p.36

[34] UG Court Camera Mins. 13 February 1919 pp.14-15

[35] K G Fenelon 'Modern Industrial Tendencies' in *The Royal Philosophical Society of Glasgow Proceedings Volume lvii 1928-1929* pp.48-49. Read before the Society 28 November 1928

[36] George Rawlinson 'Mobilising the Unemployed: The National Unemployed Workers' Movement in the West of Scotland' in *Militant Workers* Robert Duncan and Arthur McIvor eds. (Edinburgh 1992) p.176

[37] Bentley B Gilbert *Britain Since 1918* p.22

[38] Sydney Pollard *The Development of the British Economy 1914-1990* (London 1992) p.35

[39] Pollard *Ibid* p.36

[40] *Glasgow Herald Trade Review* 30 December 1919

[41] Ibid 30 December 1920 p.41

[42] Ibid 30 December 1920 p.24

[43] Corrected totals: British output and manpower excluding Scottish values.
1920 output is 229 532 081 British - 31 523 941 Scottish = 198 008 140 tons
manpower is 1 248 224 British - 149 105 Scottish = 1 099 119 men
output per person is $\frac{198\ 008\ 140}{1\ 099\ 119}$ = 180.2 tons per person.

1925 output is 243 146 880 British - 33 023 528 Scottish = 210 123 352 tons
manpower is 1 117 828 British - 131 777 Scottish = 986 051 men
output per person is $\frac{210\ 123\ 352}{986\ 051}$ = 213.1 tons per person

1930 output is 243 881 824 British - 31 658 700 Scottish = 212 223 124 tons
manpower is 943 442 British - 100 394 Scottish = 843 048 men
output per person is $\frac{212\ 223\ 124}{843\ 048}$ = 251.7 tons per person

[44] *GHTR* 30 December 1920 p.41
[45] Ibid 31 December 1931 p.59
[46] Sir James Lithgow 'The Economic Position of the Shipbuilding Industry' in *The Royal Philosophical Society of Glasgow Proceedings Volume lvi 1927-1928* p.31 Read before the Society 11 January 1928
R H Campbell *The Rise and Fall of Scottish Industry* (Edinburgh 1980) pp. 65-68 details that shipbuilders Beardmores showed a profit on only 12 out of 36 contracts completed 1901-1914. During the same period there was a profit of 2.6% on Admiralty work and a loss of 17.7% on liners built. See also Forrester, thesis, p.21
[47] Lithgow 'The Economic Position of the Shipbuilding Industry' pp.32-33
[48] Ibid pp.34-35
[49] Ibid pp.34-36, 40
[50] Ibid p.43-45
[51] Ibid p.46
[52] *GHTR* 30 December 1920 p.37
[53] Idem
[54] *GHTR* 30 December 1910 and 31 December 1912. See also Forrester, thesis p.20
[55] *GHTR* 30 December 1920 p.37
[56] G A Mitchell 'The Industrial Situation' in *The Royal Philosophical Society of Glasgow Proceedings Volume lv 1926-1927* pp.44-45. Basically, the 'Bergius Process' involves heating the coal to a critical temperature to 'sweat' the oil out.
[57] *GHTR* 31 December 1931 p.23
[58] Idem
[59] Graves and Hodge *Long Weekend* p.68
[60] J K Galbraith *The World Economy Since the Wars* p.35
[61] Ibid pp.36-37
[62] *GHTR* 31 December 1931 p.23
[63] UGGC Mins 8 October 1917 p.29
[64] Ibid 8 October 1917 p.30
[65] Ibid 24 April 1918 pp.19-31
[66] Ibid 24 April 1918 pp.19-20
[67] Ibid 24 April 1918 pp.25-29
[68] Ibid 24 April 1918 p.28
[69] Ibid 24 April 1918 p.29
[70] Ibid 30 October 1918 p.11
[71] Ibid 30 October 1918 p.20
[72] Ibid 30 September 1925 p.2 and Appendix pp.4-6
[73] Ibid 24 April 1918 p.29
[74] Ibid 24 April 1918 p.32
[75] For example see George E Davie *The Crisis of the Democratic Intellect* (Edinburgh 1986)
[76] Ibid p.3
[77] Ibid pp.i-ii

[78] Ibid pp.4-5. Davie also states that Darroch had Marxist sympathies. Ibid p.7
In 1919 Burnet became chairman of the newly founded Entrance Board. Ibid p.27
[79] Ibid p.13
[80] Ibid pp.7-8
[81] UGGC Mins 26 March 1918 p.4
[82] Ibid 30 April 1919 pp.23-24. For a clearly detailed and understandable account of the Ordinance 70 struggle between the Scottish universities, EIS, SED and many eminent contemporaries, see George E Davie *The Crisis*, chapters 3-6; pp.27-95, especially chapters 3 and 4 pp 27-45
[83] *Glasgow Herald* 1 September 1920 in UG Press Cuttings Book No.6 (IP6/1/21) pp.26-27
[84] UGGC Mins 29 October 1919 pp.14-15
[85] *Glasgow Herald* 15 June 1923 in UG Press Cuttings Book No.6 pp.42-43
[86] *Glasgow Herald* 20 May 1924 in UG Press Cuttings Book No.6 p.91
[87] UGGC Mins. 28 October 1925 and Appendix pp.20-23
[88] Ibid 24 April 1918 pp.35-36
[89] Ibid 24 April 1918 p.45
[90] Idem
[91] Ibid 28 April 1920 p.11
[92] University Grants Committee Returns (UGCR) 1919-1920 p.271
[93] UGGC Mins 16 March 1921 pp.1-2
[94] Ibid 16 March 1921 p.2
[95] Idem
[96] Ibid 16 March 1921 p.3
[97] Ibid 16 March 1921 p.2
[98] Ibid 16 March 1921 p.3
[99] Ibid 26 April 1922 pp.2-3
[100] Ibid 25 October 1922 p.14
[101] Ibid 25 April 1923 p.14
[102] Ibid 12 July 1923 p.12
[103] UGCR 1923-1924 p.3
[104] Idem
[105] UGGC Mins 30 April 1919 p.16
[106] Ibid 29 October 1919 p.9
[107] Ibid 30 April 1919 p.14
[108] Ibid 30 April 1919 p.15
[109] Ibid 28 April 1920 p.9
[110] Ibid 20 October 1919 p.9
[111] See Chapter 3, reference 1
[112] Graves and Hodge *Long Weekend.* p.24
[113] *Glasgow Herald* 17 November 1911
[114] Idem
[115] *Glasgow Herald* 19 June 1912 and 18 November 1912
[116] Ibid 25 June 1920 in Press Cuttings Book No.6 (IP 6/1/21) p.4
[117] Graves and Hodge *Long Weekend* p.60

[118] Robert Duncan and Arthur McIvor *Militant Workers* p.53
Red Clydeside is an area of intense research and many books and papers have been written on the subject. For example: see *The Scottish Labour History Journal* from 1969 onwards. The *Journal* abounds with articles on this topic. See also article and bibliography by Terry Brotherstone in Duncan and McIvor *Militant Workers*. 'Does Red Clydeside Really Matter Any More?' pp.52-80
In contrast, John Foster 'A Proletarian Nation? Occupation and Class since 1914' in A Dickson and J Treble eds. *People and Society in Scotland* vol. iii, writes 'The Red Clyde was, therefore, no mirage.' p.221

[119] Smout *A Century of the Scottish People* p.264

[120] Idem

[121] Idem

[122] Ibid p.266

[123] UGGC Mins 30 April 1919 p.15

[124] Quoted in *The Curious Diversity* University of Glasgow Press, 1970 p.65

[125] *Dictionary of National Biography* pp.382-383. He was raised to the Peerage in 1911 Ibid p.381

[126] UG Calendar 1910-1911 p.30.

[127] UG Calendar 1932-1933 p.37

[128] UG OTC Minutes 12 May 1908 p.2 (ref. DC99/1/1)

[129] Idem

[130] Ibid 22 January 1919 p.216.

[131] Ibid 20 February 1920 p.218

[132] Ibid 22 November 1920 p.224. After discussion it was agreed to adopt the Officers pattern of tunic for the contingent.

[133] UGGC Mins 27 October 1920 p.14

[134] Ibid 26 June 1922 p.30

[135] UG Calendar 1976-1977 p. XLIX

[136] See Appendix 2.4

[137] UG Calendar 1929-1930 p.115

[138] Ibid 1929-1930 p.111

[139] Ibid 1929-1930 p.189

[140] Idem

[141] Ibid 1929-1930 p.185
It was 1930 before Dr. Wm. G Whittaker was appointed to the Chair of Music UG Cal 1976-1977 p. XLVIII

[142] *Fortuna Domus* Article on Chemistry by J W Cook, Regius Professor of Chemistry, University of Glasgow pp.289-290

[143] John Butt *John Anderson's Legacy.* (East Linton,1996) p.107

[144] *Fortuna Domus* p.291

[145] Ibid p.292

[146] Ibid p.223

[147] Ibid p.142

[148] Ibid p.170 and p.353

[149] UG Calendar 1929-1930 p.169. See also *Fortuna Domus* p.353

[150] *Fortuna Domus* p.353

[151] Idem

[152] UG Calendar 1929-1930 p.192
In 1948 Mechans Ltd. of Scotstoun endowed the Mechan Chair of Engineering
UG Calendar 1976-1977 p. L
Sir Henry Mechan was the Rector's Assessor 1925-1931. See Table 5.12
[153] Ibid 1929-1930 pp.207-208
[154] Ibid 1929-1930 p.224
[155] Ibid 1929-1930 p.242. From 1947 to 1961 the Lecturer was James Holmes Hutchison UG Calendar 1976-1977 p.LXXII
[156] UGGC Mins 27 October 1920 p.12
[157] UG Calendar 1929-1930 p.248
[158] UGGC Mins 24 April 1929 p.14
[159] Ibid 29 October 1930 pp.11-12
[160] UG Calendar 1976-1977 p.LXXIII
[161] UG Calendar 1929-1930 pp.116-117
[162] *Glasgow Herald* 6 February 1921 in Press Cuttings Book No. 6 pp.6-7
[163] Ibid 1 July 1921 p.24
[164] J G Kerr 'Citizenship' in *The Royal Philosophical Society of Glasgow Proceedings Volume liv 1925-1926.* Presidential Address, p.1
[165] Ibid p.6
[166] UG Calendar 1976-1977 p.LXXII
[167] Ibid 1929-1930 p.252
[168] Ibid 1976-1977 p.LXIII
[169] Ibid 1976-1977 p.LXXIV
[170] Ibid 1929-1930 p.252
[171] Ibid 1976-1977 p.LXXIV
[172] Ibid 1929-1930 pp.252-253
[173] Ibid 1929-1930 p.253
[174] Idem
[175] Ibid 1976-1977 p.LXXVI
[176] Idem
[177] Ibid 1976-1977 p.LXV
[178] Ibid 1929-1930 p.107
[179] Ibid 1929-1930 p.208
[180] UGGC Mins 1924-1925 for the 1918-1919 statistics. See also UGCR for the years shown.
[181] Idem for the 1920-1921 statistics
[182] See Table 3.1
[183] UGCR 1924-1925 p.3
[184] See Table 3.1
[185] See Table 3.32.
[186] Idem
[187] See Tables 3.32 and 3.33
[188] See Table 3.35
[189] Except 1928-1929 and 1929-1930 when 376 students enrolled in each session.
[190] UGCR 1922-1923 p.5
[191] *University of Glasgow, History and Constitution 1977-1978* p. x
[192] *Who Was Who* volume 2 1916-1928 p.241, gives the date of death as 16 March 1927

[193] *Dictionary of National Biography 1922-1930* (London 1953 edition) pp.217-218
[194] Ibid p.217
[195] Ibid p.218
[196] Idem
[197] *University of Glasgow, History and Constitution 1977-1978* p. xix
[198] TRTCG Prospectus 1917-1918 p.11
[199] TRTCG Calendar 1920-1921 p.28
[200] Ibid 1929-1930 p.24
[201] Ibid 1929-1930 p.132
[202] Ibid 1929-1930 p.45
[203] Ibid 1929-1930 p.53
[204] Ibid 1929-1930 p.54
[205] Ibid 1929-1930 p.56
[206] Ibid 1929-1930 pp.60-61
[207] Ibid 1929-1930 pp.63
[208] Ibid 1929-1930 p.65
[209] Ibid 1929-1930 p.245
[210] Ibid 1929-1930 p.328
[211] Ibid 1929-1930 pp.329-330
[212] Ibid 1929-1930 p.333
[213] Ibid 1929-1930 pp.333-334
[214] Ibid 1929-1930 p.323
[215] Ibid 1929-1930 p.326
[216] Ibid 1929-1930 p.338
[217] Ibid 1929-1930 p.335
[218] Ibid 1929-1930 p.325
[219] Ibid 1929-1930 p.334
[220] Ibid 1929-1930 p.339
[221] Graves and Hodge *Long Weekend* pp.21-22
[222] D Thomson *Europe Since Napolean* p.565
[223] UGGC Mins 29 October 1919 p.11
Quoting from Meeting of Council 12 February 1919. 'Draft Ordinance Degree of Ph. D' This Ordinance was approved by HM in Council on 18 August 1919 and is now in force.'

CONCLUSION

Before the commencement of the First World War the University of Glasgow was the main provider in the west of Scotland of education in the arts, sciences, medicine, law and divinity at tertiary level. On the other hand its affiliated College, The Royal Technical College, was the first choice for those wanting technical education to certificate or diploma standard on either a full or part-time basis. By a long-standing agreement between the two institutions, success at the College was a direct path to obtaining a degree at the University. Affiliation, which came into effect in 1913, was unquestionably the most important immediate pre-war event in the life of the University. By the Act of Affiliation the University had access to the College's excellent technical facilities for its own students, receiving a proportion of the student's fees but not having to lay out large sums of money on new facilities to cope with the growing demand for science and technology courses.

The period up to 1914 witnessed the introduction of more advanced technology and machinery, leading to changes in working practices throughout the dominant industries of the area. The very nature of this industrialised society created demands for a labour force which required education and training. At first on-the-job training only was practised but due to various internal and external influences this changed in time to the more desirable mix of on-the-job training and technical/scientific education.[1] In conjunction with The Royal Technical College, the University of Glasgow utilised its expertise and provided facilities to educate men and women to take their places not only in the local industries and professions but those of the United Kingdom, the colonies and the rest of the world.

The two establishments operated in an economic environment which was based on the heavy industries dominated by shipbuilding. Before the declaration of war in 1914 storm clouds denoting impending world conflict were gathering. And by some of the enlightened, Germany was highlighted as the possible foe.[2] Cracks could already be

discerned in the economy by those most qualified to observe; the employers. However, the imperfections of the structure were temporarily obscured as the arms and naval race with Germany intensified from 1910. The instability of the economy was not to manifest itself into mass unemployment until the 1920's.

Another important pre-war event in the life of the University was the founding of the Department of Scottish History in 1912 with funding from an exhibition held in 1911. Robert S Rait, later Sir Robert, was its first head. Intense discussions were also taking place between the four Scottish universities concerning the introduction of a composite fee for degree courses, the adoption of a common preliminary entrance examination, the teaching of science and the introduction of a degree in commerce at the University.

As Chapter 4 details, the age of George V was soon to be shattered with the commencement of war in 1914. Once the war started, the University of Glasgow and The Royal Technical College threw the full weight of their manpower and facilities into the fray. They put at the disposal of the government their workshops and laboratories and the expertise of the remaining staff. And the government made full use of each as the United Kingdom and its empire battled against the might of Germany and its allies. Germany was recognised as a formidable foe; being industrially highly efficient with a workforce that was both technically educated and skilful.

The University and the College each lost large numbers of staff and students due to enlistment in the armed forces. Many staff and students had played an active roll in the Officer Training Corps (OTC) contingent of the University and several of these were awarded commissions. Staff were engaged by the government to assist on a variety of committees which had specific functions. There were also volunteers for overseas posts such as an adviser on naval architecture in Mesopotamia and as teachers in an educational scheme run by the YMCA.

Both of the Glasgow institutions provided rooms, staff and facilities to assist the Department of Munitions, the Admiralty and other government bodies with the task of winning the war. Tests on textiles, gases, coal by-products, explosives, steels and numerous other tests for the government and local industry were undertaken by the

College and the University. The Royal Technical College monopolised the training of munitions workers, mainly women, to take their places in the factories of the locality and elsewhere, as directed by the Department of War.

This war differed from other wars in that new and more efficient modes of killing on a mass scale had been devised. These refinements on the methods utilised in past conflicts included the deployment of the tank, aeroplane, poisonous gas and long-range artillery. The attempted mass slaughter by each of the opposing armies was not always successful and many disabling injuries occurred. Eventually, wounded servicemen began to arrive in increasing numbers to take their places in the University and College. This trickle became a flood that was hard to contain once the war came to a conclusion in November 1918 and the able-bodied were also released from the colours.

During the war the University had been under the capable leadership of Sir Donald MacAlister who held office from 1907 until 1929. Although suffering ill-health for most of his years at Glasgow, his tenure may be considered to have been successful. Apparently the University of Edinburgh also had great confidence in Principal MacAlister's abilities. This was demonstrated in 1916 when it tried to coax him away from Glasgow to take up the vacant post of principal within the capital's university.[3] MacAlister's success can be judged from a number of reference points such as increasing student numbers, degrees awarded, new chairs established and finances. Student numbers rose from 2 790 in session 1910-1911 to 5 496 in 1928-1929.[4] In comparison with the other four Scottish universities Glasgow alone saw an increase on its 1930-1931 student population compared with 1919-1920.[5] His participation in and chairmanship of national and international forums which helped formulate university educational policy during his tenure as Principal must also be emphasised .

Even though Sir Donald took a large part of due credit for the fortunes of the University, administration was not solely in his hands. As Principal and Vice-chancellor he was part of an able and experienced organisation with an efficient system of internal government as detailed in Chapter 2. The system was based on that originally put in place when Bishop Turnbull received the Papal Bull which granted permission for the

establishment of a university in Glasgow. The Bishop appointed a Chancellor and Rector and they prepared the Body of Statutes.

The University's system of government is illustrated by Table 2.1. Basically, the Chancellor was the head and was elected for life by the General Council of which he was President. The Vice Chancellor was usually the Principal. The Principal was President of the Senatus Academicus and an ex-officio member of the Court. In turn the Court was the executive body for overseeing finance, legislation and staff appointments and was the senior body in the University. The other bodies were the General Council, which supported three Standing Committees, the Senatus Academicus and various Boards of Studies.

Over the period 1910-1930 the University of Glasgow operated under the Universities (Scotland) Act of 1889. The 1889 Act superseded the Universities Act of 1858, greatly enhanced the size and power of the Court and made provision for representatives of affiliated colleges, other distinguished bodies and the Town Council to have a place in the administration of the University. Consequently, the Town Council of Glasgow, represented by the Lord Provost and his Assessor, had a voice in the affairs of the University. The Provost already had a place on the board of management of The Royal Technical College.

Chapter 1 has detailed the social structure of Glasgow and district and shown that many prominent businessmen had connections with the University. These were connections that helped to shape its academic structure. For example, the mining magnate James S Dixon donated funds for a Lectureship in mining which was later to become a Chair, thus establishing the teaching of mining. Many other examples of such magnanimity on the part of local dignitaries in providing funds for teaching specific subjects are detailed in this Chapter.

The elite of the city lived very well and by the middle of the nineteenth century their migration to the more salubrious west end area of Glasgow was well underway. In 1870 the University followed suit, left its High Street site and established itself on Gilmorehill. The less well-off could not avail themselves of the luxury of moving west

and therefore remained, increasingly relying upon the administrators of the City to look after their interests. And this was undertaken with vigour until by 1900 municipal enterprises ('municipal socialism') had grown to include the operation of the tramway and telephone systems, and the supplying of gas, water and electricity to the citizens of Glasgow. These provisions did not, however, eradicate poverty and slum conditions in the city.

Brock commented that Aberdeen with its proximity to great landed estates had aristocratic tendencies. Edinburgh, on the other hand, with its ministers, lawyers, professors, men of letters and other trappings of a capital city, was more middle class. In Glasgow the dominant elite was decidedly middle class.[6] Below these was the preponderance of the working class, which included the skilled and unskilled industrialised workforce and the army of white-collar workers who laboured in the various offices of the city. All universities acquire their individual characteristics dependent upon the social environment in which they function and Glasgow was no exception.

It can be demonstrated, though, that extenuating circumstances such as the First World War can influence such characteristics. The war intensified the awareness of the government of the importance of science. Additionally, through the example of Germany and others, it had come to realise the part science played in the well-being of the nation. With the increased application of science, the government intended that Britain would never again be wholly dependent upon another country for many of the essentials required for the promotion of its industrial well-being. Consequently, the universities were encouraged to promote the sciences.

Obviously, financial assistance and the coordination of resources and manpower would be necessary. To effect these ends a new government body was established in 1915, the Department of Scientific and Industrial Research (DSIR). After considerable resistance on the part of the Treasury, the White Paper 'Scheme for the Organisation and Development of Scientific and Industrial Research' was laid before Parliament.[7] Through the medium of the Treasury it decided to direct future industrial research and the universities would play a leading part.

The DSIR was placed under the direction of the Lord President of the Privy Council.[8] It was to oversee the funding of research and development in industry, with responsibility for the encouragement and financing of research, the great majority of which was carried out in the universities, and the training of researchers.[9] The creation of the DSIR represented an acceptance by the government of the need for planned expenditure in the universities for scientific and technological research.[10]

The increased generosity on the part of the government was not philanthropic. It was more a case that the war had demonstrated to the government that fiscal miserliness towards the universities was short-sighted. Universities were a storehouse of academic, scientific and technical expertise, coupled with workshops and other facilities, which could be drawn upon in times of national crisis such as the Great War. In addition to the expertise of the practical staff there were also academics who could turn their intellect away from the classics or arts to the problems of war. The increasing value of Treasury grants was a way of nurturing these human and material assets.

Following the war the Treasury, through the medium of the University Grants Committee (UGC), made increases in the grants it paid to the universities of Scotland. Created in 1919 by civil servants and politicians, notably Lord Haldane, and not by pressure from the universities or academic opinion, it was primarily a mechanism for government resource allocation. Its establishment reflected the need for new and effective mechanisms for channelling funds to universities which had suffered severely through neglect and lack of government funding during the war.[11].

The UGC of 1919 consisted of a part-time chairman aided by 10 senior academics who had retired from their respective universities. The members were appointed by the Chancellor of the Exchequer after consultation with the President of the Board of Education and the Secretary of State for Scotland. The original function of the UGC was to assess proposals put forward by the universities and its terms of reference were 'to enquire into the financial needs of university education in the United Kingdom and to advise the government as to the application of any grants that may be made by Parliament to meet them'.[12]

Annual and special non-recurrent grants were made to all approved institutions in varying amounts, depending upon circumstances and the quality of the plea for money put forward by the individual university. These funds did not replace private benefactors and made up no more than 30 percent of recurrent income. Over the period 1923-1929 the UGC contributed only £500 000 to the universities whilst endowments reached £3.2 million.[13]

Significantly, funds from the UGC helped to reinforce the autonomy of the universities. They now did not have to rely completely on the whims of private benefactors who might want to dictate terms and conditions attached to a gift that a university might find unacceptable. However, the constitution of the UGC guaranteed that the state would not seek to undermine institutional autonomy.[14] To safeguard further the independence of the universities the UGC was placed under the umbrella of the Treasury and not the Board of Education where state interference in the educational process might have seemed more likely.[15] However, there was a slight chink in the armour of university independence. Whilst the recurrent grant was not the major source of income in the universities' budgets it gave the state an important wedge of influence in their affairs. Notwithstanding, the universities remained primarily privately funded.[16]

Tables 3.29 and 3.30 show annual and non-recurrent grants paid to the Scottish universities and The Royal Technical College for the financial and academic years 1913-1914 to 1920-1921. Because of the differences between a financial year and the academic year, from 1920-1921 the Grants Committee decided that it would be more convenient to the universities if it paid grants in respect of an academic year, instead of the government's financial year.[17] Table 3.31 shows Treasury grants paid to the Scottish universities and to England and Wales over the period 1924-1925 to 1930-1931. A perusal of the Tables indicates that Edinburgh was significantly the most successful of the Scottish universities when it came to pleading its case for annual and non-recurrent Treasury grants.

The Carnegie Trust, created in 1901 by the expatriate Scotsman Andrew Carnegie, was a benefactor to all the Scottish universities. Commencing 1903 the University of Glasgow had a share in the income from the Trust. This money was used to buy equipment for the faculties and in particular for the expansion of the Faculties of Science and Medicine. Funds were also used for increasing the facilities for the teaching of history, economics, English literature and modern languages. Eligible students also had their fees paid by the Trust.

Following the war students flocked back to the universities throughout Britain. With reference to Scotland, Table 3.8 indicates that in session 1919-1920 Edinburgh had the largest student population with 4 182 full-time students whilst Glasgow had 3 808. Glasgow attracted the most foreign students with 100 whilst 436 from the empire, especially India, chose Edinburgh.[18] In each of the four Scottish universities and the College the majority of students came from within a 30 mile radius of their chosen educational institution.

When considering the large increase in students one must look to the heart-searching that had gone on amongst Britain's industrialists and educationists. Representatives from amongst these groups recognised that German supremacy in scientific and technical education had led to it cornering the market in such areas as dyestuffs, metallurgy, precision engineering and the electrical industry. If Britain wanted to match this performance then more scientists were required. German pre-eminence in the field of technical and scientific education may be traced to the period 1821-1836 when eight technical schools were established. Ironically, the main purpose of these foundations was Germany's endeavour to catch up with Great Britain in industrialisation.[19] Unfortunately, Britain did not think it necessary to expand this field of education as a way of maintaining its nineteenth century industrial superiority.

The student population of Glasgow and district rose to the challenge, recognising that science-based academic or technical qualifications could lead to economic success as the demand for scientists, technicians and managers rose. An academic qualification could be related to better job prospects, increased income and a better lifestyle, if not in Scotland, then in England or abroad. Statistics for the University show that in 1913-

1914, 509 males and 39 females had enrolled for science subjects. In session 1920-1921 the numbers for men had risen to 1 145 (Table 3.11) and 115 for women. (Table 3.13)

Apparently there is no correlation between the student population, government grants received and the type of course enrolled for. Alone amongst the universities of Scotland, the University of Glasgow showed a growth in student population; from 3 808 in 1919-1920 to 4 064 in 1924-1925 and 5 026 in 1930-1931. In the 1919-1920 financial year Glasgow received £69 000 in annual and non-recurrent grants combined compared with Edinburgh's £73 000. During the 1924-1925 financial year Glasgow's total income from the Treasury dropped by £6 000 to £63 000 and Edinburgh's by £3 000 to £70 000. Glasgow sustained a drop in income of £6 000 and a rise in full-time student numbers of 256. The comparable figures for Edinburgh were a drop in student numbers of 856 and a drop in income of £3 000. In financial year 1930-1931 Glasgow's total Treasury grant was £88 000 and full-time student numbers totalled 5 026. Edinburgh, on the other hand, received £95 000 from the same source with 3 725 full-time students.[20]

The government's policy of fostering the sciences increased employment prospects and thus made the applied sciences, including medicine, more attractive to men and women. For example, before the war, the faculty of Arts in the University was always the most heavily subscribed faculty for both male and female enrolment. In session 1913-1914, 34 percent of all male and 75 percent of female enrolments were in this faculty. The first full session following the war, 1919-1920, showed dramatic changes. The percentage number of male students enrolling for Arts had fallen to 19 whilst the corresponding percentage for females was 43. In each case the faculties of Science and Medicine, especially Medicine, had increased their percentage share at the expense of the faculty of Arts.[21] Government encouragement of science coupled with exposure to the heroic work of medical staff during the war and the loss of life amongst doctors created vacancies which had to be filled. And it was both men and women who took up the places.

Glasgow's proportion of students from the empire remained approximately the same over the period to 1930 whilst the proportion of foreign students varied between one and three percent of the total. Edinburgh showed a growth in its foreign student population from one percent in 1919-1920 through three percent in 1924-1925 to six percent in 1930-1931.[22] As Table 3.10 shows, in session 1930-1931 Glasgow attracted 85 foreign students out of a Scottish total of 422 (20 percent) whilst Edinburgh's share was 219 (52 percent). Glasgow's 85 foreign students were 1.7 percent of its student population whilst Edinburgh's 219 represented 5.9 percent of its population.

Edinburgh had a tradition of attracting empire students which pre-dated the twentieth century. Most studied medicine, law and engineering with the aid of colonial government scholarships. In 1902 Rhodes Scholarships were introduced and the number of colonial students at British universities trebled.[23] Britain was not always the first choice for overseas students and in the half century to 1900 the mounting economic ascendancy of Britain's trade rivals were a spur for overseas students to demand increased research facilities.[24]

In 1907 there was a meeting of the League of the Empire Federal Conference on Education. A J Balfour as Chancellor of the University of Edinburgh addressed the Conference on Higher Education and Research. Five years later the Universities Congress of the British Empire took place. This conference was based upon the style of the Association of American Universities and was attended by Sir Donald MacAlister.[25]

The first meeting of the Universities Bureau of the British Empire took place 23 January 1913 with Sir Donald as its first chairman.[26] The following year the Year Book of the Universities of the British Empire was published for the first time. On the eve of the First World War the empire was demanding better post-graduate facilities and the academics of Britain were awakening to the fact that to attract Americans and satisfy empire students such facilities were needed. The advent of war exposed the short-sightedness of past British governments and of universities in relation to science and technology, research and specialisation. Complacent Britain was too reliant upon foreigners, including Germany, for many vital products and the war cut off these

supplies. Severed from supplies the situation had to be faced at last, Britain's ignorance was costing it a great deal more than its education.[27]

The urgent needs of war led to an intensification of the struggle for the recognition of science which in turn resulted in a greater appreciation of the need for organised post-graduate research programmes leading to suitable qualifications.[28] And the United Kingdom Universities Conference of 18 May 1917 recommended that this post-graduate degree should be the one which each year attracted hundreds of British and colonial students to the universities of Germany, the PhD.[29] Moreover, there was a general feeling in academic circles that a valuable link between the universities of the empire and Britain would be a doctoral degree common to them all.[30]

At this time Britain began to recognise her dependence on her empire, not only for the production of wealth but the protection of that wealth in time of war. The opinion amongst interested parties appeared to be that if future leaders of the dominions' government and industry could partake in the British way of life through attendance at university they would look upon Britain in a more favourable light. The pleas of the dominions for Britain to provide better research facilities received, therefore, at this time, a sympathetic ear.[31]

Oxford immediately accepted the PhD and in 1917 was the first in Britain to introduce the degree.[32] But the other universities did not act with such alacrity. All offered higher degrees by research and professed that the introduction of the PhD might be the death-blow to them. However, they were eventually won round. By May 1918 the Universities of Edinburgh and Belfast had approved its institution whilst the universities of the north of England were in the process of introducing it. Glasgow fought against its introduction.[33]

On 22 November 1918 a Committee of Vice-Chancellors and Principals met to discuss the institution of the PhD. Those against or undecided about its inception were 'faced by a formidable array of institutions already proceeding with its introduction, they began to feel the threat of being left behind. The tide had turned and was sweeping them forward in its gathering momentum.'[34] Cambridge, Bristol, Durham and others

soon complied. Glasgow, however, put up a somewhat fiercer battle but in the end also accepted the inevitable. London University was the last to hold out and it was 28 May 1919 before its Senate passed a resolution for the introduction of the PhD.[35]

> And so, finally, the PhD had arrived in all British Universities: symbol of the modern era of organised training in research - conceived and nurtured in Germany, imported and commercialised by America and finally introduced into Britain in order to wean the latter's students away from the former's universities.[36]

When the statistics for PhD degrees awarded 1920-1930 are inspected they disclose that a total of 2 354 were bestowed in Britain. What at first might appear to be surprising is that of this total, 702 (29.8 percent) were awarded by the university most reluctant to accept it; London. But, London's reluctance was the very reason for its PhD successes. The University already awarded a Masters by research and, complemented by excellent facilities and experienced staff who fully embraced the doctrine of research, had earned an enviable reputation for research methods. Moreover, London itself was the capital city of England, the heart of the British empire and English speaking. In total a veritable attraction to empire and American students who previously had to travel to Germany to avail themselves of the privilege of working for a PhD.

Of the Scottish universities it is not surprising that Edinburgh took the lead in PhD and research work with 290 PhD's to 1930, with only London (702) and Cambridge (318) gaining more. Commencing with the days of Principal Sir David Brewster in the 1860's, research had been stressed by Edinburgh and over the next 30 years was increasingly emphasised. From the late 1860's onwards Edinburgh's first-class honours philology graduates could achieve a doctorate on the result of one year's research work. By the early 1880's the DSc in mental science was awarded in the same manner to its first-class honours graduates.[37] In 1895 the Scottish universities adopted the higher degrees of DLitt, DSc, and DPhil as five year research degrees open to their graduates.[38]

Edinburgh's enthusiasm for research manifested itself following the appointment in 1889 of a Royal Commission for the Scottish universities 'with executive powers directed toward bringing the university system more into line with the greatly extended training demanded by conditions of modern investigation and scholarship.' Edinburgh, as the only Scottish university with experience of research doctorates, asserted its right to promote these further and in 1891 its faculty of Arts proposed that the Senate should request the University Commissioner to institute doctorate degrees in Arts.[39]

Glasgow's share of the 530 PhD degrees awarded by the Scottish universities to 1930 amounted to 107 which was 20 percent of this total compared with Edinburgh's 55 percent. Although not as successful as Edinburgh, Glasgow's achievements are put into perspective when it is realised that it was ranked sixth in Britain behind London (702), Cambridge (318) Edinburgh (290), Oxford (161) and Liverpool (140) for the number of PhD's awarded over the period 1920-1930. The Royal Technical College with 14 PhD's was ranked 16th out of the 18 universities listed. The universities of Wales were not recorded separately and collectively they awarded 63 degrees.[40]

Glasgow's initial reticence to adopt the PhD and Edinburgh's enthusiasm, coupled with decades of experience of awarding degrees by research, go some way to explain the difference in the number of such degrees awarded but is not the whole story. The opposite side of the coin to Edinburgh's success in the award of higher degrees was not failure on the part of Glasgow.

Then, as now, success could be measured in providing students with the most suitable course for their needs and as a result increasing the student population. Edinburgh fostered research work, Glasgow encouraged first degrees to honours standard to cater for the demands of its potential students, the majority of whom resided within a 30 mile radius of the University.[41] The courses offered by Glasgow obviously reflected the needs of the local population in its search for qualifications that could be utilised by local businesses, professions and industry, leading to higher financial rewards which in turn meant a better life-style for the individual. Additionally, in times of recession it was the better qualified candidate who stood the greater chance of finding employment.

Table 3.18 shows that in session 1919-1920 the University of Edinburgh, with 20 full-time and 11 part-time students, had the largest number participating in research work. St.Andrews and Dundee with 21 full-time and no part-timers followed Edinburgh. Eight of the St.Andrews researchers were women whilst Edinburgh had two. Glasgow had a total of nine research students.

When statistics relating to research students for 1924-1925, as laid out in Table 3.19, are examined the differences between Edinburgh and Glasgow clearly reflect the type of student being catered for. Of heavily-industrialised Glasgow's 101 research students only 15 attended full-time. The remaining 86 were following a part-time course, indicating that they probably had full-time paid employment in the vicinity and attended university in their spare time in order to further their qualifications. During this session 4 064 students were in attendance at the University of Glasgow and 2 975 (73 percent) were drawn from within a 30 mile radius. There were 122 empire and 39 foreign students, showing clearly that Glasgow was not going out of its way to attract students from outwith its catchment area. It had no need to as long as local demand was high.

Edinburgh's statistics were a mirror image of Glasgow's. The capital at this time had 114 full-time research students and 18 part-timers in its 132 total. It also had 378 from the empire and 88 foreigners, making a total of 466 (14 percent of the total student numbers) from these sources in comparison with Glasgow's 161. Edinburgh's total student population was 3 326 of whom 1 805 (54 percent) ordinarily resided within 30 miles of the University. These figures show that Edinburgh more than Glasgow catered for the foreign and empire student and less for the home student.[42]

By 1930-1931 a dramatic change had taken place in Edinburgh's part-time research student population. Its 81 part-timers were composed of 73 men and 8 women, beating Glasgow's 72 men and 6 women following this path to a higher degree. Edinburgh had decided to complement its dwindling student numbers with part-time courses which would attract more students from the locality. Edinburgh still maintained its numerical superiority in those attending full-time. It had 115 men and 16 women in its 131 total compared with Glasgow's 20 men and 5 women. Glasgow's student numbers continued to rise as it catered predominantly for students who lived within

easy travelling distance of the University. It had a total full-time student population of 5 026 of which 3 465 (69 percent) resided within 30 miles, 164 (3.3 percent) were from the empire and 85 (1.7 percent) were classified as 'foreigners'. Edinburgh had a total of 3 725 full-time students of which 1 961 (53 percent) were from within 30 miles of the University, 387 (10.4 percent) were from the empire and foreigners totalled 219 (5.6 percent).

An examination of Table 3.17 indicates that apart from session 1923-1924 the University of Glasgow's Faculty of Arts always awarded more degrees than the other four faculties. The information presented in Table 3.26 shows, by calculation, that 49 percent of all degrees awarded in session 1919-1920 to students of the Scottish universities were in the Faculties of Arts with University of Glasgow students gaining 38 percent of these, Edinburgh 31 percent and Aberdeen 22 percent. The remainder went to St. Andrews. The major allocation of degrees within the Faculties of Arts is not surprising when the wide range of subjects encompassed by this Faculty is examined. Arts subjects were an integral part of many degrees outwith the Faculty of Arts. For example, Law and Theology, to mention only two, had Arts components.[43]

A comparison of Tables 3.21 and 3.22 reveals that in Arts, within Scotland, Glasgow increased its total number of students from 43 percent in session 1924-1925 to almost 52 percent in session 1930-1931. The increase had occurred in both the male and female numbers. In each of the other faculties the University had seen a decrease in its percentage share of the Scottish university students.

From session 1925-1926 the Faculty of Science was second only to the Faculty of Arts in the number of degrees awarded. These statistics demonstrate the growing importance of science in Scotland and other parts of the world. Commencing 1925-1926 until the end of the period under review, the Faculty of Medicine was always behind the Faculty of Science in the number of degrees awarded. The Royal Technical College showed an increase in the number of students following Pure Science courses but also showed a fall in the number of Technology students.

During session 1919-1920 medicine and dentistry accounted for 29 percent of all degrees awarded and 26 percent of all diplomas. The University of Glasgow awarded 34 percent of medical degrees whilst the figure for Edinburgh was 52 percent and 19 percent of diplomas. Pure Science was the third most popular degree subject with 18 percent of the total. The University of Glasgow students accounted for 40 percent of such degrees and Edinburgh 37 percent.[44]

The number of Technology degrees awarded rose from 40 in 1919-1920 to 189 in 1920-1921. In 1919-1920 The Royal College, with 40, had been the only institution to grant such degrees. In 1921 the College had slipped to third place with 47 degrees; behind Glasgow with 86 recipients and Edinburgh 56. When considering higher degrees, Edinburgh had over 50 percent of the male degrees awarded and 44 percent of the female higher degrees in session 1919-1920. Glasgow's equivalent was 30 percent for males and 22 percent for females.[45] Table 3.24 indicates that in session 1924-1925 Edinburgh presented 76 higher degrees and Glasgow presented 41.

Tables 3.24 and 3.25 reveal that in sessions 1924-1925 and 1930-1931 Glasgow awarded 1 110 and 1 119 degrees whilst Edinburgh awarded 834 and 774. Ordinary degrees totalled 694 for Glasgow and 647 for Edinburgh. In each case the majority of degrees were bestowed upon men. By session 1924-1925 the University of Glasgow had broken the stranglehold of The Royal Technical College by awarding over 50 percent of all Technological degrees in Scotland. The Royal College awarded 30 percent. Combined, these two institutions accounted for over 80 percent of all technological degrees awarded in Scotland and 29 percent of the British total.

The 1924-1925 statistics reveal the boost given to the number of degrees and diplomas awarded by the graduation of returning service personnel on government assisted places. The number of diplomas gained by students in Scotland continued to rise. 202 were awarded in 1919-1920 and this rose through 310 in 1924-1925 to 418 in 1930-1931. As the relevant tables disclose, the College never awarded less than 61 percent of all diplomas granted in Scotland for the years discussed.[46] Session 1924-1925 saw a marked decrease in the number of full-time students attending university, mainly male students assisted under the government scheme. In 1923-1924 there had been 1 721 in

attendance and this number had dropped to 263 in session 1924-1925. There had been a steady decline in the number of such students since the high water mark of 1920-1921.[47]

Overall the main decrease in male student numbers had been Medicine, 970 and Technology 496. For females the main loss had also been in the Faculty of Medicine with a drop of 367 students. There had been little change in male and female numbers in Pure Science and Agriculture whilst Arts had shown an increase of 557 males and 353 females. The 1924-1925 UGC Report continued:

> The decrease in students of Medicine, as distinguished from Dentistry, was most marked in the Scottish Medical Schools, where there were 537 fewer men and 178 fewer women last year than in the year before.[48]

Throughout Britain there had been a fall in Engineering students from 3 413 in 1923-1924 to 3 036 in 1924-1925; in Metallurgy from 187 to 140 and in Applied Chemistry from 338 to 280. Students of Architecture were virtually unchanged at about 200 whilst in Mining there had been a slight increase from 263 to 275.[49]

In session 1930-1931 the two Glasgow institutions combined catered for 48 percent of the full-time students in attendance at Scottish establishments providing higher education and an outstanding 76 percent of all part-time students.[50] Glasgow's share of the Scottish student population rose from 42 percent to 45 percent, the increase being wholly in the Faculty of Arts.[51]

Session 1924-1925 saw Aberdeen with two students following Technology courses and this had risen to 43 in 1930-1931. All the remaining institutions registered a drop in this branch of study. Apparently the slump of the 1930's was taking hold and the decreased job opportunities in industry led to fewer opportunities for the young graduate; hence the fall in student numbers in science and technology.

Unfortunately, the UGCR combined the University of Glasgow and The Royal Technical College statistics for the degrees awarded in session 1930-1931 so an exact

comparison between the Universities of Glasgow and Edinburgh cannot be made. Notwithstanding this anomaly, Table 3.25 shows that the two Glasgow institutions granted 269 Honours, 793 Ordinary and 57 Higher degrees making a total of 1 119 of which 708 went to men and 411 to women. Of Edinburgh's 774 degrees 166 were Honours, 533 Ordinary and 75 Higher. Men received 528 of the total degrees (68 percent) and women 246 (32 percent).

Table 3.20 shows that the trend of increased female attendance at university continued to 1930-1931. In this session a total of 3 536 women attended full-time and 206 part-time. The rise in female students appears to result from the increased freedom now claimed by them following the war and the desire and opportunity to partake in higher education. Moreover, the decline in the availability of male partners reduced the prospect of marriage for women following the carnage of 1914-1918. This situation could also have induced women to attend university in order to achieve the means, via a degree, to provide financially for their own future.

By session 1930-1931 the number of full-time students attending universities and colleges in Britain which received a Treasury Grant was 47 587. Of these 2 237 were engaged in research or other advanced work; 36 886 were enrolled for a first degree whilst 8 464 were working towards a diploma. 33 569 of the total full-time students were studying in England; 2 868 Wales and 11 150 in Scottish universities. Male full-time students were 34 629, or 72.8 percent of the total whilst females numbered 12 958 or 27.2 percent.[52] The decline in men attending Scottish universities full-time had been halted by 1930-1931. In this session there was a total of 7 614 compared with 6 438 in 1924-1925 and 8 066 in 1919-1920. The statistics for part-time attendance remained remarkably steady in the post-war period for both sexes as revealed by a comparison of Tables 3.18; 3.19 and 3.20.

In addition to full-time students there was a substantial number following part-time courses during 1930-1931. Part-timers numbered 14 725 with 6 445 of these doing advanced work, first degree or diploma courses. Another 8 280 were classed as 'occasional' students taking one or more courses of lectures or laboratory instruction of university standard by university teachers but not leading to a degree or diploma.

5 632 of the part-timers doing advanced, first degree or diploma work were studying in England; 107 in Wales and 706 in Scottish universities.[53]

It is also important to examine in which faculty the awards were made. This gives an insight into which areas of the Scottish economy students were finding employment. Admittedly not all students were destined to be employed in Scotland but the majority were. In order to clarify in which departments Scottish students were qualifying, Tables 3.26; 3.27 and 3.28 have been constructed. These Tables detail the faculties in which the degrees and diplomas were awarded. The industrialised base of Glasgow and district and the area's pre-eminence in technological studies is reflected in the share of Technology degrees and diplomas gained by University of Glasgow and Royal Technical College students.

Amidst the economic and social turmoil of the time the University still had to conduct its business in an efficient manner. As it settled down to cater for its record number of students the lecturers of the University expressed dissatisfaction with their salaries and status. Lecturers wanted substantial salary increases and representation on Faculty, Senate and Court bodies. Discussions between the interested parties took place but it was 1920 before the draft ordinance 'Regulation as to Readers, Senior Lecturers, Membership of Faculties etc.' was sent to the Council by the Court for their comments. By the Universities (Scotland) Act of 1922 the Lecturers were granted the right of membership of the General Council.

The attempt to offer a degree in commerce came onto the agenda once more in this post-war period. The Business Committee solicited the views of the Chamber of Commerce, the West of Scotland Commercial College, manufacturers, merchants and other businessmen upon the type of education required to fit men for a career in business. They received all the replies necessary to make an assessment of the requirements to establish the degree but the analysis of this information by the interested parties was not uniform. Basically, it became an argument of liberal versus practical education.

The supporters of liberal education advocated that the existing MA degree be adapted to a Bachelor of Commerce by the addition of a number of subjects selected from modern languages, economics, and political and commercial geography. Subjects such as Organisation of Business, Principles of Commerce, Accounting, Currency and Banking were thought by the proponents of liberal education to be unnecessary as the practical aspects of commerce should be taught either in the Commercial College or acquired in the business place. In this instance the liberals won the day and the plans to institute the degree of Bachelor of Commerce in the University came to naught. Other aspects of business that occupied the Scottish University Courts and Councils were bursaries and the Preliminary Entrance Examination. Eventually these were brought to a satisfactory conclusion as detailed in Chapter 5.

In the minds of many who had fought in the war, the Armageddon had been to secure the homeland against the opponents of right and justice. The soldiers and others who had survived wanted the fruits of victory. Expectations were not really high: adequate housing, employment yielding a wage sufficient to provide for themselves and family, with a little left over for recreation would have satisfied most. They were soon to be disillusioned as prices spiralled, unemployment became endemic and, for thousands, decent housing remained a dream. Reality was tramping the streets and vying with the employed for the available jobs. Some relief had become available when the Unemployment Insurance Act became law in November 1920.

Strikes took place on a national scale in 1926 when the striking miners were joined by others. For all except the miners the strike was short-lived as members of the public united against them in an effort to keep public utilities operating. As the 1920's gave way to the 1930's there was no relief from the carousel of unemployment, slum housing and an air of depression, exacerbated by the collapse of the American Wall Street stock exchange in October 1929. The crash closed another market to British goods as economic turmoil hit the richest country on earth.

Unbeknown to all, relief from the beast of unemployment and the resulting poverty was imminent as the 1930's drew to a close. Unfortunately the relief was in the form of World War Two and the same foe had to be fought again. Once more, along with

members of its empire and allies, the United Kingdom rose to the occasion as the nation once more answered the call to arms.

This thesis has been written using material from a variety of sources which are detailed in the bibliography. For the University the primary material is to be found in the University of Glasgow Archives and the Glasgow Room of the Mitchell Library. Material from Strathclyde Regional Archives and the Scottish Record Office were consulted only in order to place in context some of the general issues concerning education in the west of Scotland as it may have affected the University. The University of Strathclyde Archives contain the primary sources for The Royal Technical College and those institutions from which it evolved.

Chapter 1 deals with the University and the community in which it was located and served. It uses mainly appropriate secondary material to cover the foundation of the University in 1451, aspects of the Glasgow social structure, housing, municipal socialism, and the economy. Books consulted have included Fraser and Maver's *Glasgow Volume ii: 1830-1912*; Devine and Finlay's *Scotland in the 20th Century,* Fraser and Morris's *People and Society in Scotland Volume ii* for the period 1830-1914 and Volume iii in the same series, edited by Dickson and Treble, for the period 1914-1990. These, and other books of essays, cover all aspects of Scottish society from a modern, that is, recently written, point of view. For a chronicle of events without analysis Joe Fisher's *The Glasgow Encyclopedia* is useful.

However, for opinion and analysis written by contemporaries of the period to 1930 as they affected Glasgow, the *Proceedings* of The Royal Philosophical Society of Glasgow are invaluable. A perusal of the volumes, located in the Glasgow Room, make essential and interesting reading. If the footnotes of this thesis are examined they will indicate the extent of the use that has been made of the *Proceedings* and the range of subject matter contained therein. Another source of contemporary material located on the open shelves of the Glasgow Room is *The Bailie* and, on microfiche, newspapers including the *Glasgow Herald*

Chapter 2 has been included to explain how the University governed itself in the pre-war period and has been written using mainly, but not exclusively, original material. This material is to be found in the University of Glasgow Archives which are now located in Thurso Street, Glasgow and not the University itself. Calendars, General Council Reports, Minutes of Senate and Council as consulted for Chapter 2 are all in this location. The Glasgow and West of Scotland Technical College (GWSTC) Minutes and the Glasgow Athenaeum Minutes are to be found in the University of Strathclyde Archives whilst University Grants Committee Returns (UGCR) are in the University of Glasgow Library.

The desire of people to be educated to degree level was the raison d'être for the University being in existence and a large amount of space has been devoted to the student population. Probably because of a working lifetime spent by the author in the mechanical engineering industry, this chapter relies heavily upon statistical material in the form of tables to present information relating to the students of the University and The Royal Technical College. This information has been gathered mainly from primary sources although books by John Butt, *John Anderson's Legacy* and Tom Begg's *The Excellent Women*, amongst others, have also been consulted.

The emphasis of this thesis is the participation of the University in the First World War. Because of the wealth of easily accessible material concerning the participation of The Royal Technical College in the conflict, chapter 4 was always in danger of being taken over by this institution at the expense of the University. Once again primary material has been used mainly to show the extent and scope of war-work. Many relevant articles from *The Royal Philosophical Society of Glasgow Proceedings* have been consulted. These have included several by Professor William Smart of the University, a prolific writer on economic and social aspects of the time with socialist, even Marxist, leanings. John H Jones, a colleague of Professor Smart, was another prolific writer whose articles have been cited.

Books which have been consulted because they cover particular aspects of this chapter include I G C Hutchison's remarkably detailed political work *A Political History of Scotland 1832-1924* and M Dyer's *Capable Citizens and Improvident Democrats. The*

Scottish Electoral System 1884-1929. A useful essay on the Scottish political scene is C Harvie's 'Scottish Politics' in *People and Society in Scotland, Volume iii, 1914-1990* edited by A Dickson and J Treble. This short essay gives a useful basic overview of the Scottish political scene from the beginning of the twentieth century to 1990.

For an insight into the economic scene J K Galbraith's *The World Economy Since the War* and Sydney Pollard's reprinted *The Development of the British Economy 1914-1990* have been found useful. Articles by William Smart in *Proceedings Volume xlvi 1914-1915*; John H Jones *Proceedings Volume xlvii 1915-1916*; J W Murray *Proceedings Volume xlviii 1916-1917* and *The Glasgow Chamber of Commerce Monthly Journal* are all useful sources of information written during the war.

The final chapter deals with the aftermath of the war as the University acclimatised to peace. Once again primary and secondary material has been consulted in order to analyse this trying period as dreams and aspirations of thousands were shattered in the 1920's and 1930's. Papers from the *Proceedings* have been used whenever the view of the time, instead of analysis by succeeding historians and other commentators, have been thought to be appropriate. The Footnotes to Chapter 5 detail the sources used.

This thesis has identified many areas in which research could be undertaken. An in-depth history of the University, such as that written by J Coutts in 1909, as opposed to articles, would be a mammoth but worthwhile task, welcomed by the academic world. On a less ambitious scale, articles such as investigating the role of the University within the community would be of value. The role of the University in differing aspects of community life such as local and national politics, its influence on the economic and business life of Glasgow, the interaction between itself and the other Scottish universities, for example, might also be considered as future projects.

Another obvious research project would be to continue where this thesis ends and investigate the proceedings of the University in the period 1930 to, say, 1960 or some other appropriate date before the proliferation of universities in the 1960's. Similar

work could be undertaken on aspects of history relating to The Royal Technical College.

An investigation of the student population might also be fruitful. Many aspects on this theme suggest themselves. For example, the job destinations of graduates. Evidence seems to suggest that most graduates remained in Scotland but further research would be required to verify the extent of this statement. The eventual destination of Scottish male engineering, chemical and science graduates could be traced to determine whether they settled in Scotland or were tempted to England or foreign countries in search of better prospects. The roles of men and women graduates of the University within the community might also reveal trends as to the advantages attached to a university education in the 1920's or another chosen period.

Typical of a thesis such as this, many more questions are raised than answered. The universities of Britain contained a greater wealth of expertise and facilities than the government realised until the First World War commenced. Perhaps there is still greater wealth of academic interest waiting to be discovered within the walls of the ancient institutions by the diligent research of interested scholars.

CONCLUSION

FOOTNOTES

[1] Forrester Ph.d. p.80
[2] Sir J H A MacDonald Opening Address 'Conference on The Proposal of Universal Military Service for the Defence of the Empire' in *Royal Philosophical Society of Glasgow Proceedings* Vol. xliv 1912-1913 pp.190-226.
This was a two-day conference; 29 January 1913 and 26 February 1913
[3] See page 183 and footnote 179 Chapter 4
[4] Table 3.1 p.95
[5] Tables 3.18; 3.19; 3.20 pp.124-126
[6] Chapter 1 p.8 ff and William R Brock *Scotus Americanus* Edinburgh (1982) p.170
[7] Renate Simpson *How the PhD came to Britain. A century of struggle for postgraduate education* SRHE (1983) p.112
[8] Michael Shattock *The UGC and the Management of British Universities* p.33 SRHE and OU Press (1994)
[9] Renate Simpson *How the PhD came to Britain.* p.112
[10] Shattock *The UGC* p.104
[11] Shattock Ibid p.1
[12] Shattock Ibid p.2
[13] Shattock Ibid p.1
[14] Shattock Ibid p.104
[15] Shattock Ibid p.33
[16] Shattock Ibid p.106
[17] UGCR 1920-1921 p.2
[18] *Glasgow Herald* 29 December 1916. Also Chapter 3 p.103
[19] Wolfgang Konig 'Technical education and industrial performance in Germany: a triumph of heterogeneity.' pp.65-66 in *Education, Technology and Industrial Performance in Europe, 1850-1939* Robert Fox and Anna Guagnini eds. CUP 1993
[20] Information retrieved from Tables 3.18-3.20 and 3.29-3.31
[21] Tables 3.11 and 3.13 pp.113 and 117
[22] All percentages calculated from information in Tables 3.8, 3.9 3.10
[23] Renate Simpson *How the PhD came to Britain* p.101
[24] Simpson Ibid p.111
[25] Simpson Ibid pp.106-107
[26] Simpson Ibid pp.109-110
[27] Simpson Ibid p.112
[28] Simpson Ibid p.114
[29] Simpson Ibid p.132
[30] Alexander Morgan *Scottish University Studies* OUP (1933) p.192
[31] Renate Simpson *How the PhD came to Britain* p.114
[32] Simpson Ibid p.135
[33] Simpson Ibid p.154
[34] Simpson Ibid p.155
[35] Simpson Ibid pp.155-159. Alexander Morgan *Scottish University Studies* p.192 states that Aberdeen did not introduce the PhD until 1921.

[36] Renate Simpson *How the PhD came to Britain* p.159
[37] Simpson Ibid p.68
[38] Simpson Ibid p.67
[39] Simpson Ibid p.69
[40] Simpson Ibid p.164
[41] 1919-1920, 50% from within 30 miles; 1924-1925, 73%; 1930-1931, 69% Tables 3.8; 3.9 and3.10
[42] Table 3.19
[43] Percentages calculated from Table 3.26 and rounded to nearest whole number
[44] Calculated from information in Table 3.26 and rounded to nearest whole number UGCR 1920-1921 degrees awarded: Arts = 667; Pure Science = 184; Agriculture = 76; Medicine and Dentistry = 444; Technology = 189
[45] Calculated from Table 3.23
[46] 62% 1919-1920; 76% 1924-25; 64% 1930-1931
[47] UGCR 1924-1925 p.3
[48] Idem
[49] Ibid 1924-1925 p.4
[50] Calculated from data in Tables 3.18, 3.19 and 3.20
[51] All percentages calculated from information in Tables 3.21 and 3.22. Aberdeen 14 to 11; Edinburgh 34 to 33 ; Royal Technical College 4 to 3; St.Andrews & Dundee 6 to 7
[52] UGCR 1930-1931 p.3
[53] Idem

APPENDICES

APPENDIX 2.1. UNIVERSITY OF GLASGOW SRC PRESIDENTS 1910-1911 TO 1930-1931

Session	President
1910-1911	Robert Gibson MA; BSc
1911-1912	John Boyd MA
1912-1913	Ian D Grant
1913-1914	R H Williamson
1914-1915	Archibald Rae
1915-1916	Archibald Rae MA
1916-1917	A S Strachan MA; BSc
1917-1918	A S Strachan MA; BSc
1918-1919	Thomas S Sargent MA
1919-1920	J W C Dougall
1920-1921	Robert E Davie MA
1921-1922	R L Mackay BSc
1922-1923	J M Stirling BSc
1923-1924	Gavin McCallum
1924-1925	James Thomson MA; MB
1925-1926	John C Stewart
1926-1927	Hugh R Leishman BSc
1927-1928	Angus F MacLeod MA
1928-1929	W A Smellie MA
1929-1930	G W Robertson BSc
1930-1931	Robert Dollar DD

Source: UG Calendars for the sessions shown

APPENDIX 2.2. RECTORS OF THE UNIVERSITY, 1905 TO 1931

1905-1908	Herbert H Asquith, later 1st Earl of Oxford and Asquith
1908-1911	George Nathaniel, 1st Baron Curzon
1911-1914	Augistine Birrell
1914-1919	Raymond Poincare, President of the French Republic
1919-1922	Andrew Bonar Law
1922-1925	Frederick Edwin, 1st Earl of Birkenhead
1925-1928	Sir Austen Chamberlain
1928-1931	Stanley Baldwin, later 1st Earl Baldwin

Source: *University of Glasgow, History and Constitution p.xiii*

APPENDIX 2.3. DEAN OF FACULTIES OF THE UNIVERSITY 1904 TO 1940

1904-1911	Sir James King
1911-1919	William Stewart
1919-1921	George Gilbert Ramsay
1921-1929	Sir Hector Clare Cameron
1929-1940	Frederick Orpen Bower

Source: *University of Glasgow, History and Constitution p.xvii*

APPENDIX 2.4.	UNIVERSITY OF GLASGOW. PROFESSORSHIPS CREATED UP TO 1930
Subject	**Year Established**
Mathematics	1691
Humanity	1706
Oriental languages	1709
Civil Law	1712
Medicine	1712
Church History	1716
Anatomy	1718
Astronomy	1760
Natural History	1807 (became Zoology 1903)
Surgery	1815
Midwifery	1815
Chemistry	1817
Botany	1818
Materia Medica	1831
Institutes of Medicine	1839
Forensic Medicine	1839
Civil Engineering	1840
Conveyancing	1861
English Language & Literature	1861
Divinity and Biblical Criticism	1861
Clinical Surgery	1874
Clinical Medicine	1874
Naval Architecture	1883
History	1893
Pathology	1893
Political Economy	1896
Geology	1903
Zoology	1903
St Mungo Chair of Surgery (previously Clinical Surgery 1874)	1911
Muirhead Chair of Medicine (previously Clinical Medicine 1874)	1911
Muirhead Chair of Obstetrics & Gynaecology	1911
St Mungo (Notman) Chair of Pathology	1911
Scottish History & Literature	1913
Tennent Chair of Ophthalmology	1917
French	1919
German	1919
Bacteriology	1919
Organic Chemistry	1919
Physiological Chemistry	1919
Mercantile Law	1920
Cargil Chair of Applied Physics	1920
Electrical Engineering	1921 (James Watt Chair)
Theory and Practice of Heat Engines	1921
Public Health	1923
Medical Paediatrics	1924
Italian	1924
Spanish	1924
Accountancy	1925
Music	1928

Source: University of Glasgow Calendar 1929-1930 p. 40

APPENDIX 5.1 UNIVERSITY OF GLASGOW PROFESSORS, 1873 TO 1930

NAME	CHAIR	YEAR APPOINTED
Henry M B Reid [1]	Divinity	1903
William Stewart [2]	Biblical Criticism	1873
John Ferguson	Chemistry	1874
Frederick O Bower	Botany	1885
Archibald Barr	Civil Engineering & Mechanics	1889
James Moir	Conveyancing	1889
Sir John H Biles	Naval Archit. & Marine Engineering	1891
Sir William Macewan	Surgery	1892
Ludwig Becker	Astronomy	1893
Murdoch Cameron	Midwifery	1894
Sir Henry Jones	Moral Philosophy	1894
William Smart	Political Economy	1896
Ralph Stockman	Materia Medica	1897
John Glaister	Forensic Medicine	1898
James Cooper	Church History	1898
Robert Muir	Pathology	1899
John S Phillimore [3]	Humanity	1906
Andrew Gray	Natural Philosophy	1899
Dudley J Medley	History	1899
Sir Hector Cameron [4]	Clinical Surgery	1900
Samson Gemmell [5]	Practical Medicine	1908
Robert Latto	Logic and Rhetoric	1902
John G Kerr	Zoology	1902
William M Dixon	English Language & Literature	1904
John W Gregory	Geology	1904
William M Gloag	Law	1905
Diarmid Noel Paton	Physiology	1906
Gilbert A Davies	Greek	1906
Charles Latham	Mining	1907
William B Stevenson	Hebrew and Semitic Languages	1907

APPENDIX 5.1. UNIVERSITY OF GLASGOW PROFESSORS, 1873 TO 1930

NAME	CHAIR	YEAR APPOINTED
Thomas H Bryce	Anatomy	1909
George A Gibson	Mathematics	1909
George Milligan	Biblical Criticism	1910
John M M Kerr	Obstetrics & Gynaecology (Muirhead Chair)	1911
Robert Kennedy	Surgery (St. Mungo Chair)	1911
John H Teacher	Pathology (St.Mungo-Notman Chair)	1911
Walter K Hunter	Medicine (Muirhead Chair)	1911
T K Munro	Practice of Medicine	1913
Robert S Rait	Scottish History and Literature	1913
John D Cormack	Civil Engineering & Mechanics	1913
William R Scott	Political Economy	1915
William S M'Kechnie	Conveyancing	1916
George G Henderson	Chemistry	1919
Charles Martin	French	1919
Herbert Smith	German	1919
Carl H Browning	Bacteriology	1919
Thomas S Patterson	Organic Chemistry	1919
Edward P Cathcart	Physiological Chemistry	1919
Thomas G Wright	Mercantile Law	1920
James G Gray	Applied Physics	1920
Percy A Hillhouse	Naval Archit. & Marine Engineering	1921
William J Goudie	Theory & Practice of Heat Engines	1921
George W O Howe	Electrical Engineering	1921
Archibald Main	Ecclesiastical History	1922
Robert W Dron [6]	Mining	1923
John R Currie	Public Health	1923
Archibald Young	Surgery	1924
Peter Paterson	Surgery (St. Mungo Chair)	1924
Ernesto Grillo	Italian	1925
William J Entwistle	Spanish	1925

APPENDIX 5.1 UNIVERSITY OF GLASGOW PROFESSORS, 1873 TO 1930

NAME	CHAIR	YEAR APPOINTED
Archibald Bowman [7]	Moral Philosophy	1927
E Taylor Jones	Natural Philosophy	1926
John Loudon	Accountancy	1926
William Rennie	Humanity	1927
James Hendry	Obstetrics & Gynaecology (Muirhead Chair)	1927
John Girvan	Conveyancing	1927
Thomas MacRobert	Mathematics	1927
Herbert J Paton	Logic	1927
Andrew Hunter	Physiological Chemistry	1928
J J Craik Henderson	Mercantile Law	1930
W Gillies Whittaker	Music	1930
E B Bailey	Geology	1930
J D Mackie	Scottish History and Literature	1930

Source: UG Calendars 1910-11 pp.19-20; 1920-21 pp.20-22; 1930-31 pp.16-18

[1] It should be noted that the Professor of Divinity always headed the list of University Professors, regardless of the date of his appointment to a Chair. By the Statute of Royal Visitation, 1727:

> The precedency of the Masters in point of ceremony shall, in all time coming, be, that the Professor of Divinity take place first after the Principal, and that all the other Masters and Professors of whatever kind take place of other according to the seniority and time of their admission into their respective offices.[8]

[8] Source: UG Calendar 1930-1931 p.17

[2] Retired 30 September 1910
[3] Occupied Chair of Greek 1899-1906
[4] Retired 30 September 1910
[5] Occupied Chair of Clinical Medicine 1900-1908
[6] The Chair of Mining was unoccupied 1918-1923
[7] Occupied Chair of Logic 1925-1927

APPENDIX 5.2. UNIVERSITY OF GLASGOW. REVENUE AND EXPENDITURE 1910-1911 TO 1930-1931

Year	Income	Expenditure	Surplus	Deficit
1910-1911	81 552	89 353	nil	7 801
1911-1912	91 903	95 253	nil	3 350
1912-1913	103 442	104 242	nil	800
1913-1914	99 834	102 829	nil	2 995
1914-1915	94 210	96 181	nil	1 971
1915-1916	93 001	90 901	2 100	nil
1916-1917	85 889	89 208	nil	3 319
1917-1918	92 048	91 283	765	nil
1918-1919	124 774	109 617	15 157	nil
1919-1920	161 362	152 140	9 222	nil
1920-1921	174 732	190 160	nil	15 428
1921-1922	198 720	189 664	9 056*	nil
1922-1923	207 757	207 116	641	nil
1923-1924	212 385	210 917	1 468	nil
1924-1925	212 913	221 787	nil	8 874
1925-1926	227 422	232 002	nil	4 580
1926-1927	234 844	237 956	nil	3 112
1927-1928	241 718	246 682	nil	4 964
1928-1929	251 858	251 499	359	nil
1929-1930	256 476	260 933	nil	4 457
1930-1931	273 289	271 226	2 063	nil
Totals	3 520 129	3 540 949	40 831	61 651

Note: All amounts in £ Sterling.

* Period of Accounts changed: charge for salaries includes only 10 months for Professors and 9 months for other members of the teaching staff

Source: UGGC Mins ref. DC 183/3/3 and DC 183/3/4

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